SEPT. 25 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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R_t

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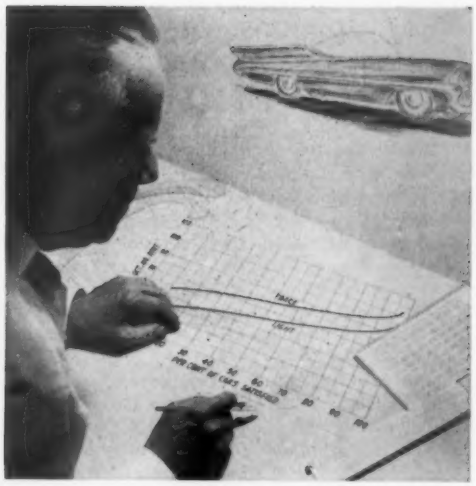

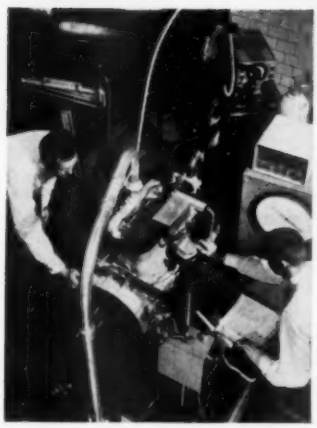

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DEPT/Opinions

Views That Make News

"Ample inventory levels of gasoline for Nov. 1 of this year, according to the [Texas Railroad] Commission's last survey, will range between 150-million and 160-million bbl. The probable actual level at that time, based on stocks on hand and rate of production and consumption, will exceed that estimate by 15-million to 25-million bbl.

"Similarly, the 'ample' estimate of distillates also ranges between 150-million and 160-million bbl. as of Nov. 1. Here again, projecting current demand figures and relating the industry's present production trend and inventories, there is every indication that distillate inventories will be 25-million to 35-million bbl. higher than ample.

"The excess of stocks for all products over those considered ample to serve the industry efficiently, is now over 50-million bbl. This excess represents the employment of over $200-million in capital just to carry it."

—J. Ed Warren
President
Cities Service Co.

"We can talk about politics day after day and we can provide all kinds of training programs in practical politics . . . but all this won't amount to very much with the busy man and woman who has full-time company chores to do, unless they know that the big boss is seriously interested, and that he is doing something about it.

"To the question why Continental Oil Co. is taking a more active role in public affairs, one answer is sometimes suggested to which we very definitely do not subscribe. And that is to create some kind of countervailing or anti-union center of power or political force. We reject that answer. . . . Ours is not in any sense of the word a union-oriented program."

—Harry J. Kennedy
Senior Vice-President
Continental Oil Co.

"The investment necessary [overseas] for transportation, refining, and marketing facilities runs to about $3,000 per bbl. of daily outlet. This adds up to a big initial expenditure for a company just entering the foreign scene . . .

"Aside from the problems raised by competition for concessions and markets overseas, the foreign producer today must also take into account current efforts on the part of the governments of certain major producing countries abroad to get all of the producing nations outside the U.S. together to control international prices through joint limitation of exports.

"It is difficult to imagine how any such international scheme could be set up, much less made to work."

—M. A. Wright
Director
Standard Oil Co. (N.J.)

"If a dealer participates in civic affairs with a sincere desire to help his community and build good will, his success is assured. But if he does it as an advertising or promotion gimmick, it's bound to fail."

—William P. Marquam
Manager, trade relations
Pure Oil Co.

"The founding fathers of the United States were men skilled in dialectic Americanism. We need such believers today—men fired with the conviction and the missionary zeal to bring about a rebirth of faith in freedom, to restore pride in self-reliance, to reestablish success as a worthy goal."

—Robert C. Dunlop
President
Sun Oil Co.

"Business has many friends in the Texas public; it has many friends in the Legislature—if we don't forsake them."

—Charles W. Alcorn
Outgoing President
Texas Mid-Continent Oil & Gas Assn.

"The tax burden can only be reduced by reducing the level of government spending. If we are to pay less we must demand less of our government—and we must demand efficiency in the essential remaining governmental activities. Taxes now take one dollar out of three we earn. This cannot increase much further without permanently damaging our economic system and reducing the standard of living."

—Reese H. Taylor
Union Oil Co. of California
Chairman

Petroleum Week *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, Petroleum Week, *330 W. 42nd St., New York 36, N.Y.*

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INSIDE Slant

HOW WOULD IT WORK?

Despite a history of failure of international agreements to control prices, there still is a possibility that producing countries will experiment with controls in the future.

This opinion was expressed last week by M. A. Wright, director of Standard Oil Co. (N. J.).

He told the Texas Mid-Continent Oil & Gas Assn. that foreign producers today must take into account the efforts of some governments to get all producing nations outside the U.S. to band together to control international prices through joint limitation of exports.

At the same time, he expressed doubt as to how such an international scheme could be set up, much less made to work.

For example, on what basis could export quotas be assigned to each producing country? Even more difficult would be the problem of effective enforcement.

Such a plan would be almost impossible, Wright said, in view of widespread exploration abroad which promises to establish important new producing nations.

Short of a world-wide agreement, it is hard to see how just one or two oil-exporting countries could benefit.

LeRoy Menzing
EDITOR

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60-Second Summary / WHAT'S HAPPENING IN OIL

September 25, 1959

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Oil companies are doing more shopping for bargains in overseas equipment and supplies. Main reason, analyzed in a Petroleum Week special report, is the sharpening competition among U. S. and foreign equipment manufacturers. . . . p. 42

•

The Oil, Chemical & Atomic Workers Union is getting ready for a two-fisted organization drive. Its national convention in Cleveland will be asked to set the stage. But the drive itself may precipitate an inter-union row for the AFL-CIO. . . . p. 15

•

Ocean transport of liquefied natural gas is now technically and economically practicable. So says Constock International Methane in disclosing plans for several methane tankers ranging up to 20,000 tons. . . . p. 76

•

Conoco's experimental fracturing program in Southwest Texas is providing double dividends. In addition to extracting oil more economically, the experiment is substantiating some basic theories on fracturing. . . . p. 20

•

There are growing demands that top management act to limit refinery runs to more realistic levels. Excessive runs so far are an economic plague to the whole industry. . . . p. 11

•

To exploit the advantages of tubingless completions, there's a need for more development of specialized equipment and techniques. That's the gist of a detailed report by Humble Oil & Refining Co. . . . p. 26

•

Iraq is thinking about operating its refineries at full capacity and exporting the surplus. Since it needs only 25,000 b/d for its own use, that would throw 35,000 b/d on the export market. . . . p. 84

•

Oil heat marketers may have a truly unified organization by the middle of next year. An API task force is laying the groundwork, will announce its plans in November. . . . p. 92

•

A petroleum product may wind up as the best source of power for the fuel cell. Refiners are taking an active interest in the development of the right fuel, and scientists hope for a major breakthrough within the next two years. . . . p. 68

•

Is there a way for fuel oil dealers to take some of the hysteria out of service calls and operations? Meenan Oil Co. is experimenting with a unique chart drawn up by two professors, and so far it has been working pretty well. . . . p. 90

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE Copyright PETROLEUM WEEK

September 25, 1959

Present restrictions will continue on residual fuel imports, regardless of mounting pressure for decontrol. That was decided at a mid-week meeting of sub-cabinet-level officials. They have been considering proposed changes for several weeks.

The decision followed Venezuela's rejection of a U.S. offer to hike resid quotas if Venezuela would drop its demand for an import policy change—a switch to a system of quotas by countries of origin.

But more studies are under way on residual imports. One idea being considered would allow more companies to import residual fuel by adding terminal operators to the list. The large number of such companies presents a big stumbling block, however.

Imports Administrator Carson does not anticipate a shortage of residual this year. For one thing the industrial slowdown due to the prolonged steel strike has lowered residual demand (page 95). But should resid supplies get tight, Carson says, the Interior Dept. can move fast to boost permissible import levels.

•

The AFL-CIO has a hopeful formula for internal peace. It could end jurisdictional disputes and pave the way for uninhibited organizing in the oil and chemical industries (page 15). The plan, endorsed this week by convention delegates, provides for establishment of compulsory arbitration machinery for interunion disputes.

The formula could settle what the Oil, Chemical & Atomic Workers Union has described as its biggest internal problem, the fight with the AFL-CIO Metal Trades Dept. over construction rights in oil refineries.

•

The Federal Power Commission will rehear the Transwestern Pipeline Co. application for its Texas-to-California gas line. The commission approved the project in mid-August, but ordered cuts of from 1¢ to 4¢ per Mcf. in prices Transwestern proposed to pay producers for about 75% of its gas supply.

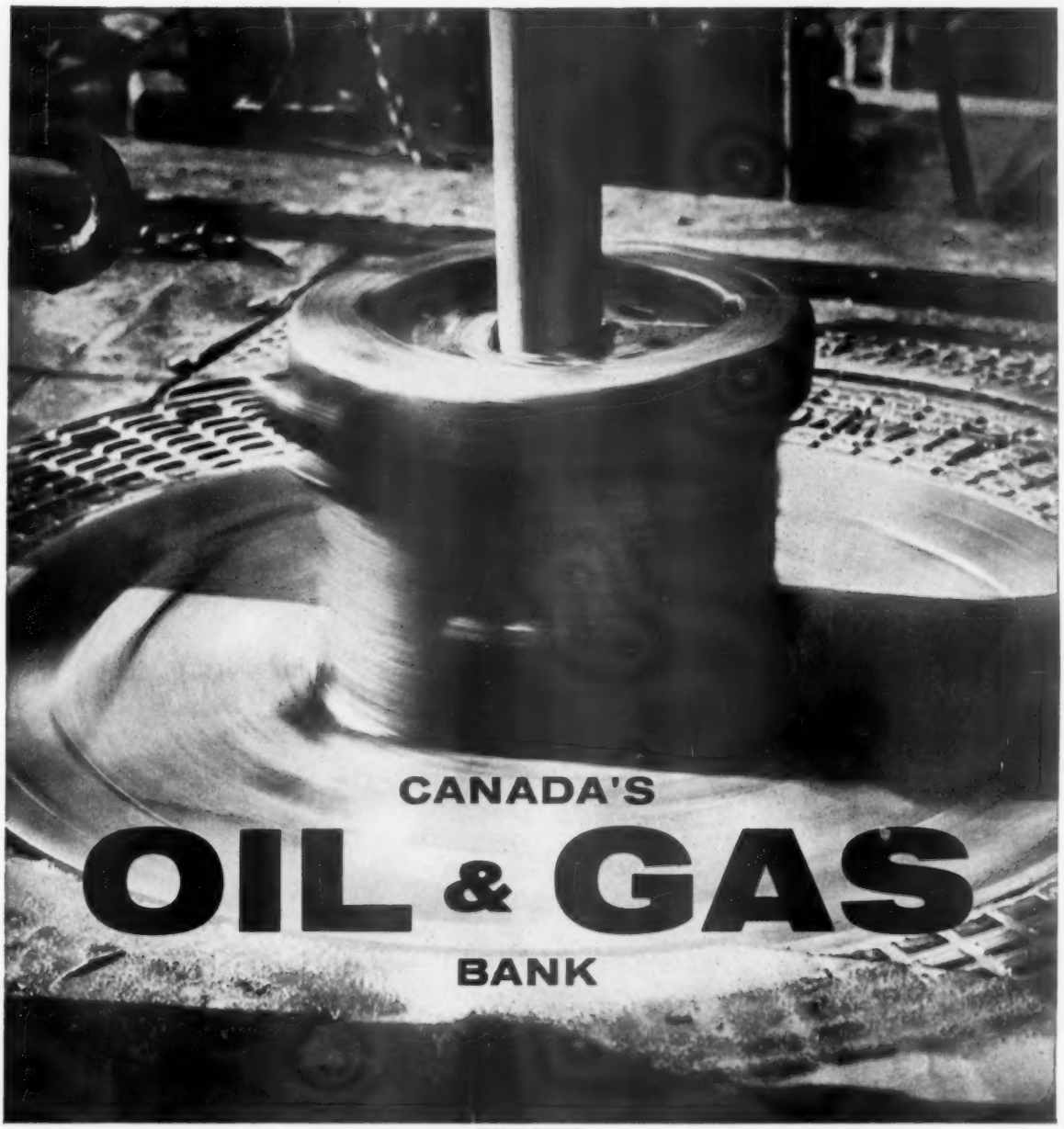
•

Gulf Oil Corp. is tightening up its corporate structure in consolidation moves somewhat akin to the Socony Mobil and Jersey Standard actions. Its west coast subsidiary, Western Gulf Oil Co., is being dissolved, and several district offices either have been closed or will be shortly.

Western Gulf personnel are being shifted, and California becomes an area under Gulf's Denver division. Meanwhile, Gulf management called a special shareholders meeting to vote on a proposed three-for-one stock split. Authorized capital would remain the same. Gulf also declared a quarterly dividend of 62½¢, an extra cash dividend of 50¢, and a 3% stock dividend.

•

Canadian crude exports to the U.S. next month will average about 63,000 b/d, or 21,000 below the September rate. The primary reason for the drop is that Shell will not take additional Canadian oil for its Anacortes (Wash.) refinery next month. It is now taking 23,700 b/d.



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We do not provide information on oil securities

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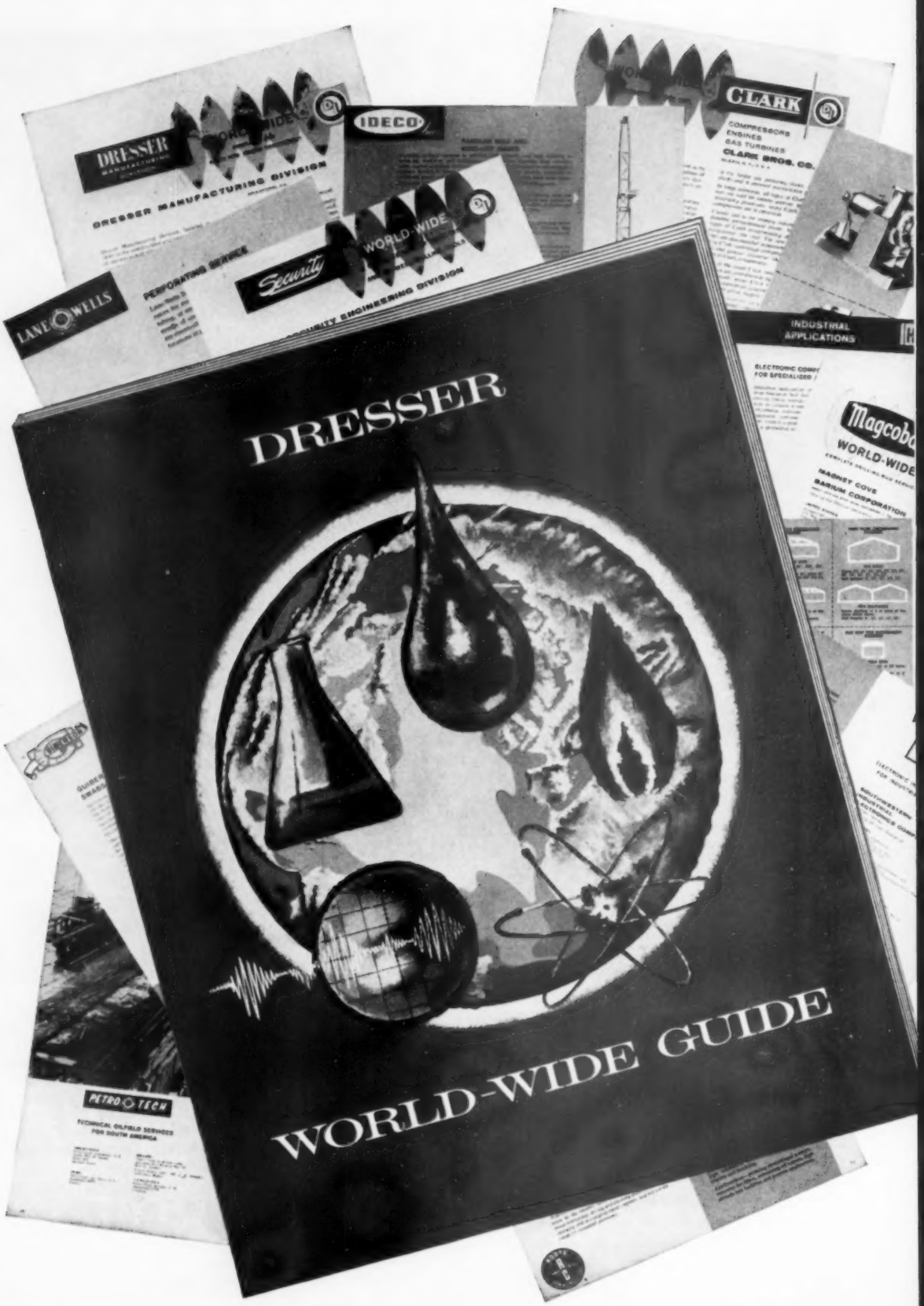
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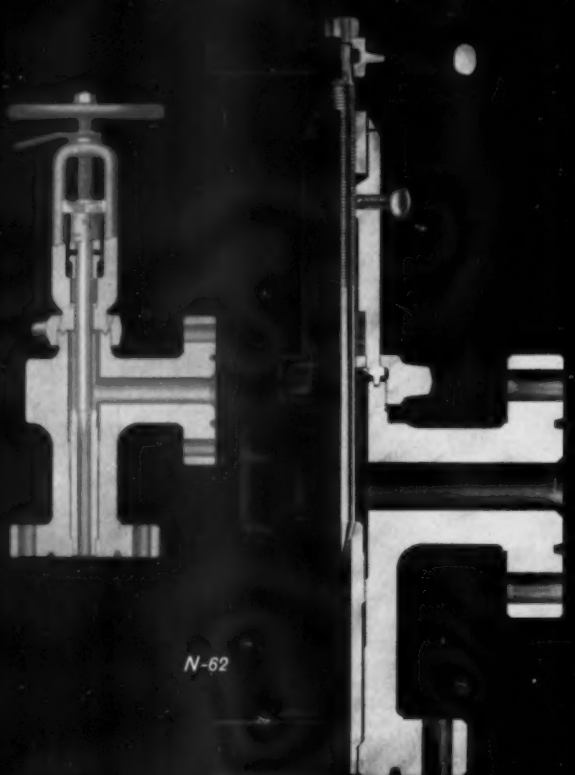

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Oil's 'Cure' Is Up to Management

- **The chronic illness is excessive refinery runs, which plague the industry's entire economic structure.**
- **With only a small gain expected in fourth-quarter demand, the time to aid the patient is slipping fast.**

There is growing evidence that top management in the oil industry may be lax in meeting its responsibility to control its refining operations in line with demand.

That was borne out last week at the statewide hearing of the Texas Railroad Commission.

Representatives of major integrated firms attending the hearing admitted that their personal views of required production in Texas to meet demand were lower than the nominations submitted by their companies.

Under direct questioning from Ernest O. Thompson, commission chairman, many purchaser representatives agreed that current inventories are "alarming" and "dangerously high"—well above the levels that top management itself testified earlier this year would be ample at the start of autumn.

Such comments by purchaser representatives at the hearing led one close observer to remark in Austin last week that "maybe the integrated companies should send three men to each statewide hearing."

"One," he explained, "would represent the producing department, one the crude purchasing boys, and the other, the refiners."

And another observer of industry trends notes that with all of the statistics available, the oil industry is in a better position than most to practice sound inventory management.

The actions of the many companies so far this year—despite their denials—indicate desire to maintain refinery operating rates higher than necessary.

One large independent producer charged last week, in effect, that company operations are controlled by refining departments. "The refiner," said Jake L. Hamon, of Dallas, "loves to see those unit costs go down and can't seem to keep from utilizing excess refining capacity to do it."

The record so far this year would appear to bear out such a contention. Refinery runs, averaging 8,047,000 b/d in the first eight months, are up 7.2% over last year. Total demand, on the other hand, has increased only 5.2% over last year.

And as a result, crude inventories have dropped sharply since the end of June—a decline of 23.4-million bbl., or 316,216 b/d—to 249.1-million bbl. in mid-September.

And 8.7-million bbl. of the decline in crude stocks consisted of crude of West Texas origin—reflecting a heavy demand for West Texas sour, which has a price advantage to Gulf Coast refiners.

On the other hand, product inventories since the end of June have jumped 51-million bbl., or an average of 689,000 b/d.

In brief, the current oversupply position indicates that the industry may be forced into reducing refinery runs in the fourth quarter, normally the peak demand period of the year.

It represents a strange paradox in a year that was expected to mark the industry's big recovery—after the enforced curtailments during the latter part of 1957 and most of 1958 that were necessary to work off the surpluses built up before and during the Suez emergency.

The Independent Petroleum Assn. of America estimated this week that fourth-quarter demand—"assuming it will not be substantially affected by steel strike"—will average about 10.3-million b/d, or only 1.3% above the last three months of 1958.

The mounting surpluses in storage are staggering.

Gasoline inventories are turning up again after the close of the seasonally high demand period. And with current stocks at 183-million bbl., the gasoline "carryover" into fall is the largest ever.

These high stocks—there is almost as much gasoline in storage now as there was at the end of 1958—will plague the industry well into 1960 as a heavy depressant on motor fuel prices.

Inventories of middle distillates, now in excess of 200-million bbl., are at a record high, more than 30-million bbl. over a year ago.

And while No. 2 heating oil prices in the past two weeks have moved up ⅜¢ a gal. to 8.125¢ in the Gulf Coast spot market, the current "low" is still ½¢ a gal. below a year ago.

And the price prior to the recent advances—7.75¢ a gal.—was a five-year low.

With crude stocks at a relatively low level and domestic crude production in October expected to run no higher than the September average, refiners' available new supply will be limited.

The high runs in 1959 have reduced crude inventories to the lowest position since last September—a level that had been reached after more than a year of rigid tight controls imposed

'API Quarterly' Changes Face, Format

The American Petroleum Institute's membership publication, "The Quarterly," will be converted into an external, popular-appeal magazine next month.

Its new name will be "Petroleum Today." It will be seen for the first time shortly after the middle of October.

Circulation will be boosted from the present 15,000 to 40,000. The extra distribution is designed to reach libraries, thought-leader groups, colleges and universities, and other places.

The format and contents are being revamped extensively, and the articles will have more general appeal than heretofore.

Color and art layouts will be used regularly to add to the visual appearance. It will be edited by API's Committee on Public Affairs and will contain only feature material—no advertising.

by conservation authorities in some states.

Indications now point to U.S. crude production of about 6.8-million b/d next month, based on allowables that have been established.

In Texas, the Railroad Commission ordered another nine-day schedule.

This schedule means an initial allowable of 2,714,826 b/d, a decline of 51,536 b/d from the mid-September level.

The decision to continue a tight rein on production was based on the concern of the commission and producers over the deteriorating position of the industry.

Two of the major purchasers—Indiana Crude Oil Purchasing Co. and Phillips Petroleum Co.—recommended such tight restrictions.

The majority, though, nominated to purchase on a ten-day basis. And two companies—Humble Oil & Refining Co. and Texaco Inc.—requested an 11-day producing pattern.

One independent producer, E. L. Wilson, of Dallas, said: "I can see no justification for an increase until the surplus is worked down."

But Charles Shaver, representing Humble, said the company had lost one order of 20,000 b/d of crude in September for lack of enough supply. He added: "We don't believe we can get the oil we'll need in Texas on less than a ten-day schedule." He explained that Humble wanted more crude from West Texas, West Central Texas, and the Panhandle.

In New Mexico, though, the Oil Conservation Commission boosted the October allowable. It estimated that the increased permissible will result in actual production of about 297,000 b/d, or 10,200 b/d over the present output.

The commission added 2 b/d to the state's normal unit allowable in the southeast, granting a 35 b/d unit for October. In the northwest, the unit permissible was trimmed 1 b/d to 53 b/d per unit. The commission also granted producers 9,000 b/d in supplemental allowables, making the total allowable in both areas 350,257 b/d.

Davis Will Be Humble President

- **Seven-man board named to operate the Jersey Standard Delaware affiliate.**
- **Carter's Brice, Esso's Naden, and Humble's Reistle to be top aides.**

Morgan J. Davis

William Naden

C. E. Reistle, Jr.

John W. Brice

E. Duer Reeves

H. W. Haight

H. W. Ferguson

Morgan J. Davis will head the proposed consolidated operation of all the Jersey Standard exploration, producing, refining, and marketing operations in the U.S., with headquarters in Houston.

Davis, now president of Humble Oil & Refining Co. of Texas, is slated to become president of a new company—Humble Oil & Refining Co. of Delaware, which was organized Sept. 4.

That company will become the top Jersey Standard operating affiliate in the U.S., assuming the operations of Humble of Texas, Esso Standard Oil Co., Carter Oil Co., Oklahoma Oil Co., and Pate Oil Co., if stockholders approve the proposed merger of Humble of Texas into Jersey Standard (PW—Sep.11'59,p13).

Special meetings of shareholders of Jersey and of Humble of Texas, whose stock is owned 98.27% by Jersey, will be held before the end of 1959 to vote on the merger.

Jersey Standard has proposed to effect the merger by an exchange of stock, offering the approximately 5,000 minority Humble owners five shares of Jersey for each four shares of Humble they hold.

The other Jersey Standard operating affiliates that will be merged into Humble of Delaware are all 100%-owned companies.

Jersey affiliates in the U.S. that will be excluded from the consolidation for the present are Esso Research & Engineering Co., Jersey Production Research Co., and Gilbert & Barker Mfg. Co.

A seven-man board will direct the consolidated operation initially; it will consist of three members from Humble and two each from Esso and Carter.

In addition to Davis, the board will include these six:

John W. Brice, who has been president of Carter; William Naden, president of Esso Standard; and C. E. Reistle, Jr., executive vice-president of Humble of Texas, will be executive vice-presidents and directors.

H. W. Ferguson, now vice-president of Humble of Texas; H. W. Haight, chairman of Carter; and E. Duer Reeves, executive vice-president of Esso Standard, will be vice-presidents and directors of Humble of Delaware.

It is anticipated that the board of Humble will be "considerably expanded as the needs of the new organization develop."

Officers of the new company who will not be named to the board have not been selected yet.

The headquarters staff will be built up "rather slowly," and in the interim period the directors will use the existing personnel of the various operating divisions, Humble said.

The companies to be merged into the new operating company will continue to operate initially under their present names as divisions.

Those divisions will continue to have their own boards and officers. It is expected that the election of the top officials in the new Humble organization will bring about changes in the top managements of the operating divisions.

Tidewater-Skelly Merger Is Off

Another attempt to combine Tidewater Oil Co. and Skelly Oil Co. was suddenly called off last week.

Plans for the latest merger of the two companies, owned principally by Getty Oil Co., were first reported under discussion last April. And other attempts to combine Tidewater, Skelly, and other Getty holdings date back at least a dozen years.

Tidewater says negotiations were broken off because the company felt its operations and earnings had shown such an improvement that a merger would be unfair to its stockholders.

"The continuing improvement in operating results and the excellent net assets value indicated for Tidewater by merger discussions and by outside appraisers' evaluations show that in fairness to Tidewater stockholders, a merger under current market conditions is not advisable," said George F. Getty II, Tidewater's president.

"Tidewater's continuing program of expansion through capital expenditures is beginning to contribute substantially to earnings," he added, "and Tidewater stockholders should have every opportunity to see the company's asset value and earnings reflected in the market price of their stock." Tidewater earnings for the first seven months of 1959, Getty reported, totaled $22,559,000.

Just this past July, Tidewater indicated the merger was well on its way to completion. And in August, a report of the merger was filed with the Dept. of Justice.

The report gave complete details of the proposed merger, along with other factors relative to operations of the two companies. And it was generally believed that the two companies were getting along well grinding out a basic set of ground rules for the merger.

One Man's Sneeze, Another's Oil Field?

That's the way Standard Oil Co. of California sums up the growing interest of oil companies in palynology's role in oil (PW—Jun.12'59, p35).

Palynology is the study of pollen and spores buried in the ground millions of years ago. These are the same pesty microscopic dusts that keep a good part of the nation sneezing and wheezing every year.

A. L. Lyman, president of Standard's research arm, California Research Corp., says that one way oil men hunt ore is to find rock formations that are about the right geologic age. Rocks are examined for microscopic fossils of creatures or plants that lived during the prehistoric times when oil was formed. Such oil hunting has been confined to areas where fossils were preserved by burial under sediments of ancient seas. Remains on dry land were exposed to the atmosphere and decomposed rapidly, leaving few fossils for hunters to find.

But, Lyman adds, palynologists have discovered what every hay fever sufferer knows: Pollens are pretty hard to get rid of. They resist decomposition on dry land, too.

California Standard is using this method in exploratory work from Bolivia to Alaska.

But, Lyman concludes, even with this technique, the time and expense of finding an oil field is still nothing to be sneezed at. You still have to drill a well to make sure, and eight times out of nine it'll probably be a dry hole.

Gasoline Taxes Bite Deeper

State	Total Taxes Per gal.	% of Retail Price
Alabama	11¢	50.2%
Arizona	9	39.3
Arkansas	10.5	52.8
California	10	50.2
Colorado	10	43.7
Connecticut	10	50.3
Delaware	9	45.2
Dist. of Col.	10	47.8
Florida	11	55.3
Georgia	10.5	46.9
Idaho	10	36.5
Illinois	9	41.1
Indiana	10	50.3
Iowa	10	45.7
Kansas	9	36.9
Kentucky	11	50.2
Louisiana	11	55.3
Maine	11	55.3
Maryland	10	45.7
Massachusetts	9.5	47.7
Michigan	10	49.5
Minnesota	9	45.2
Mississippi	11	50.1
Missouri	7	29.9
Montana	10	37.2
Nebraska	11¢	50.2%
Nevada	10	35.7
New Hampshire	11	55.3
New Jersey	9	45.2
New Mexico	10	42.7
New York	10	45.7
North Carolina	11	52.6
North Dakota	10	50.3
Ohio	11	55.3
Oklahoma	10.5	46.9
Oregon	10	38.6
Pennsylvania	9	45.2
Rhode Island	10	50.3
South Carolina	11	52.6
South Dakota	10	40.2
Tennessee	11	55.3
Texas	9	42.4
Utah	10	40.2
Vermont	10.5	43.0
Virginia	10	50.3
Washington	10.5	38.3
West Virginia	11	55.3
Wisconsin	10	43.7
Wyoming	9	34.7
U. S. Average	10.2	47.0%

Gasoline's unhappy role as a source of federal, state, and local taxes gets another kick in the pants next week.

Come Thursday, the federal tax will be increased a penny a gallon. That'll boost the national average tax on gasoline to 10.2¢—or 47% of the retail price (page 100).

In 20 states, the combined tax bite will exceed 50% of the retail price (table), based on regular-grade motor fuel.

Seven states will top 55%. They are Florida, Louisiana, Maine, New Hampshire, Ohio, Tennessee, and West Virginia.

The new tax is only one of the many that have been levied on oil's principal product in the last decade.

Between 1949 and 1958, according to the American Petroleum Institute, 41 states authorized no less than 58 separate tax increases. The federal government added two more.

Combined, the 60 boosts add up to a 37% increase in gasoline taxes.

The tax bite on motor fuel and other oil products will exceed $4.8-billion this year, and $5.4-billion in 1960.

Of the 1960 total, $2.2-billion will go to the federal government and $3.2-billion to state and local treasuries.

Census Bureau reports indicate that state taxes on gasoline are second only to general sales and gross receipts taxes as a source of revenue.

SHINTO PRIEST performs the rituals of cleansing and purification in this new Shell service station in Japan.

BURYING A BUFFALO'S HEAD marks this Selamatan good luck ceremony at new Caltex port in Sumatra.

HINDU GODDESS OF WEALTH is feted at station opening in India.

CHANTING Buddhist priest blesses Stanvac refueling system in Thailand.

TOKEN OFFERINGS are placed on altar asking Shinto gods to protect this Japanese refinery against fire, floods, and any other acts of the Gods.

Operating Overseas Can Be Ticklish

Oil companies operating overseas have found that working in countries of different and varied cultures can present a series of unusual and touchy problems.

They range all the way from burying a buffalo's head as a good-luck offering to hiring witch doctors to scare away evil spirits. Yet they are all necessary as means of fitting in with local ideologies.

In Japan, for instance, Shinto religious ceremonies accompany new refinery openings. The priests call on the gods to protect the facilities against fire and floods—any act of nature. They consecrate the ground by sprinkling salt around the ceremonial table. Then participants in the ceremony place token offerings on the altar and bow. The priest then thanks the gods, and the gods, in turn, theoretically accept the offerings.

Many refiners in Japan erect fox shrines at their gates. The fox god is the only deity who will listen to pleas for profit, which falls into the category of "greed." The other gods are considered too pure to have anything to do with such desires.

Another example is in Indonesia, where a traditional good luck ceremony, called the Selamatan, marks almost every opening of a new oil installation.

Its origin can be traced back for centuries to before the advent of Hinduism, Buddhism, and Islam. At that time, "sadjens," offerings in the form of sacrifices, were made to please the spirits or enlist their help.

Today, when a new oil facility is dedicated, buffalo heads, sprinkled with rice, are usually buried nearby as the appropriate "sadjen."

In Thailand, too, oil men go along with local custom. Astrologers must be consulted to pick a date for the opening of a new service station. If the station is opened on a day the astrologer thinks unlucky, the Thais will not patronize it.

Thai stations are also blessed in an unusual ceremony: Nine priests, dressed in ceremonial robes, assemble in the station and take their places along a richly carpeted low bench—usually stretched across the lubrication bays. Through each of their hands runs a Holy Thread. The thread expresses a gathering in a common purpose, and will assure the station and operator continual prosperity.

OCAW Drive May Set Off Union Fight

Organization plans of the Oil, Chemical & Atomic Workers Union may kick up a rumpus in the industry and precipitate an interunion squabble for the international AFL-CIO.

OCAW's national convention, which opens in Cleveland Oct. 5, will be asked to gear up the machinery for a two-fisted assault on the industry's most strategic targets.

Its officers have proposed the creation of a new division of organization, and a healthy buildup of the union's strike treasury.

They want to strip orthodox field services to a minimum for an indefinite period, and throw the whole works behind the organization drive.

The defense fund, according to O. A. (Jack) Knight, OCAW president, would be built up to such a point that it "would deter the companies from forcing our locals into strikes, as several have done in the past year."

The agenda for the annual meeting, which will continue through Oct. 10, has been streamlined so that the 700 rank and file delegates can concentrate on the organization program.

The delegates represent 190,000 members.

OCAW won't identify the specific targets it has in mind for the organization drive, but it does say they will be the ones whose capture would strengthen its bargaining hand most.

The activities of the reinforced organization crews, Knight says, will be devoted "to plants and projects of sufficient size and importance to improve the over-all collective bargaining strength of OCAW."

The union already is embroiled in strikes on several fronts, and concedes that it is pushing full-scale membership drives on several others.

These include two Esso refineries—the huge plant at Baton Rouge, La., and the one at Bayway, N.J.—and Indiana Standard's refineries at Whiting, Ind., and Wood River, Ill.

That's where the interunion ruckuses may come to the fore, and pile up headaches for the AFL-CIO.

The fight for collective bargaining rights at Baton Rouge is a four-cornered affair. It involves OCAW, the Metal Trades Union of New Orleans (AFL-CIO), the Teamsters, and an independent union which had held the contract for 23 years.

At last week's AFL-CIO convention on the West Coast, the Metal Trades group accused OCAW of "destructive" raiding. Knight re-

PETROLEUM COMMENTS / By Wanda M. Jablonski

Proration Overseas Is Not the Same

It is not yet clear whether the Venezuelan government is seriously contemplating proration of production.

So far, the Ministry of Mines & Hydrocarbons has only indicated proration as one possibility—along with other conservation practices—to be studied with the help of a consulting engineer borrowed from the Texas Railroad Commission.

Conservation, in itself, is a sound principle, of course. Certainly no U.S. oil man can quarrel with Venezuela's desire to apply some of the same principles of conservation we have developed in the U.S.

But in applying these regulations abroad, it is important to keep one basic point in mind: The oil industry does not operate under the same rules overseas as it does at home.

* * * *

This particularly applies to proration. In the U.S., a producer's oil rights run in perpetuity—that is, his leases are good for the life of the wells.

Overseas, however, oil production rights are under limited term contracts. In Venezuela, production concessions are limited to 40 years, after which the producer's remaining oil reserves become the property of the state.

Obviously, it is one thing for a state regulatory body in the U.S. to tell a producer how much he can produce; this does not reduce his ultimate recovery rights.

But it is an altogether different kettle of fish for a government to restrict production on a limited term lease. This would be a direct violation of the producers' rights.

When Venezuela sold these concessions, it was with the clear understanding that the companies had the right to produce all the oil they could without restriction (other than sound engineering practices) for the 40-year life of the leases.

* * * *

The Ministry's recent public statements have indicated that it is not interested in maximum production now, because it feels current prices are too low and believes the nation will get more value for the oil later.

If this is so—if the nation will get more benefit from the oil later—then the producers should be accorded the same privileges.

In other words, if the government wants to change the conditions of the producing leases by suddenly restricting production, it should—in all fairness—at the same time adjust the duration of the leases correspondingly.

In short, proration needs to be viewed within its context: that there is a basic distinction between proration under limited term contracts and proration in the U.S., where production rights are in perpetuity.

sponded that the Metal Trades people are organizing illegally in his territory.

That had all the earmarks of a potential scrap between the two.

The Baton Rouge refinery, the country's largest, represents quite a plum for any union. OCAW, which recently ousted the independent union at Humble Oil & Refining Co.'s Baytown (Tex.) plant, is anxious to get it (PW—Aug.28'59,p11).

The stage for the big push on oil targets will be blueprinted in detail at OCAW's annual convention ten days hence.

Knight has said that locals will have to make temporary sacrifices to enable the new director of organization to utilize all available manpower.

He warned, too, that "some potential organizing projects—those which are not within the basic industries OCAW deals with, and those which are small—probably will have to be bypassed temporarily so that attention can be focused on those strategic plants which, if organized, will clearly put OCAW in a stronger position at the bargaining table."

He added a palliative for members: He said the organization drive would be financed out of present income, primarily through reduced activities. That would mean no increase in dues or per capita assessments for the present.

OCAW hopes to build up its strike fund on a voluntary basis. Knight said he will propose voluntary payments of $1 per month per member by locals agreeing to participate.

Increased strike benefits financed by this $1 contribution, however, would be limited to participating locals.

Meanwhile, as union delegates prepared for the Cleveland meeting, OCAW strikes and picket lines continued at one Indiana Standard and two American Oil Co. refineries.

The strike at the Indiana company's Sugar Creek (Mo.) plant is now termed a million dollar walkout, because employees, as of last week, have lost $1-million in wages.

Some 125 supervisory personnel, aided by about 50 regular employees, are still operating the 76,000 b/d plant at approximately 50% of capacity.

Bargaining halted Sept. 11 after refinery manager P. C. Livesay charged that five employees were ambushed. Nine strikers were indicted subsequently on felonious assault charges, but no trial date has yet been set.

No progress at all is reported in the OCAW strikes against Amoco plants in Texas City, Tex., and El Dorado, Ark.

What's New / IN THE INDUSTRY

Two suits seeking to restrain U.S. customs officials from enforcing the mandatory oil imports program have been dismissed by a federal judge in Houston. The reason: Texas American Asphalt Corp. and Eastern States Petroleum & Chemical Corp. did not include members of the Oil Import Appeals Board as defendants in their suits. Judge Joe Ingraham said that Texas American's "unfortunate predicament" reflected a "lack of sound business judgment in building a refinery without an assured supply of nearby domestic crude."

"Many companies, indeed whole industries, have been forced out of business by governmental regulation," he said. "That regrettable consequence does not, however, establish a denial of due process." Regarding Eastern States, the judge ruled that if the court issued an injunction against the defendants, the plaintiff could import more oil than was allocated, and would nullify and invalidate the requirements of the Presidential proclamation.

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Crude prices in California and the Four Corners area appear to be settling near the levels posted by Standard Oil Co. of California. Last week, both General Petroleum and Texaco announced they were putting their postings in line with California Standard's price. General Petroleum is restoring part of its original cut—made when it met the initial cuts by Union Oil Co. of California. These were greater than the cuts of California Standard, which ranged from 5¢ a bbl. on heavy crudes to a maximum of 25¢ a bbl. on light oils in California, and 15¢ a bbl. on Four Corners crude (reducing the top price to $2.75 a bbl.). Union cut California crude by 10¢ to 50¢ a bbl., and Four Corners crude by 30¢.

•

"Appreciable" quantities of oil have been found for the first time in Nigeria's western region. Shell-Bp of Nigeria reports oil in its sixth wildcat in the area, at Ughelli, 70 mi. from nearest production at Oloibiri. The wildcat is now being tested.

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Mobil Oil of Canada and Royalite Oil Co. exchanged producing properties and lease interests in a multimillion-dollar deal. The agreement involves 1.3-million acres in the central Alberta foothills and oil-producing properties in southeast Saskatchewan. Mobil is getting a 15% interest in 14 reservations and other acreage 115 mi. southwest of Edmonton. In return, Royalite gets $2.5-million plus a 50% interest in 36 oil wells in the Carnduff, Edenvale, Hastings, and Ingoldsby fields of southeast Saskatchewan. Mobil also has obligations on the 10% interest Royalite retains in the Foothills reservation, where Mobil will paricipate with Royalite and three other companies. Six tests have been drilled there, with three significant gas discoveries and three dry holes.

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Petroleum refinery employment in California is down because of automation. This is a conclusion of a preliminary inquiry by Gov. Edmund G. Brown into the effect of automation and mechanization on employment in his state.

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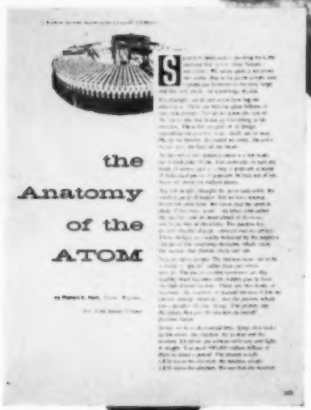
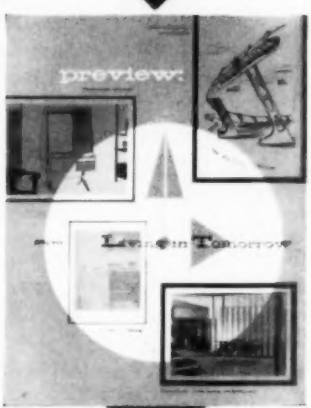
The rise in product demand in coming years won't be as big as has been anticipated. That's the opinion of M. E. Spaght, Shell Oil Co. executive vice-president. He says the increase will taper off to between 3% and 4% annually from about 5% today. He chalks up this slowdown to the impact of natural gas and small cars.





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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
September 25, 1959

Keep an eye on the coal industry's ambitious recovery program. Coal, realizing it has been running a poor third in the energy market, intends to fight to improve its position. Thus the National Coal Policy Conference was recently created. The conference has a double-barreled lobbying aim: to boost coal both competitively and politically.

•

President Eisenhower's veto of a coal research bill won't slow the program. In fact, the White House action may spur the coal lobby's work. The bill would have established an independent commission to seek new uses for coal. In vetoing the bill, Eisenhower said the Interior Dept. should conduct this type of research. Coal leaders were hurt by the veto, but they are expected to bounce back, press for such an Interior Dept. program. They are encouraged by Eisenhower's remarks that coal research is desirable.

Coal's major goal is a national energy policy. The research bill was small potatoes compared to this policy objective. Just before Congress adjourned, concurrent resolutions were introduced in the House and Senate for creation of a joint committee to study the need for a national fuels policy. Even in Congress' final days, the resolutions made solid progress. The Senate version already has received committee clearance and will be awaiting floor action next year. The House resolution will be pending before the Rules Committee.

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A pitch for coal's policy ideas will be made next month in congressional hearings. Rep. Wright Patman (D., Tex.), chairman of the joint economic subcommittee on automation and energy resources, will start hearings Oct. 12 on anticipated energy needs in the U.S. Joseph E. Moody, president of the new coal conference, and other coal spokesmen will testify Oct. 15.

But there will be considerable oil and gas testimony, too. The tentative witness list includes Carl T. Kallina, chief of the Federal Power Commission's Bureau of Rates Gas Certificates; a Humble Oil & Refining Co. official who will analyze the domestic oil industry; W. J. Murray, Jr., a member of the Texas Railroad Commission; Commissioner Arthur Kline of FPC; Petroleum Economist Bernard N. Darbyshire; and others.

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Oil industry opposition to the coal program is already lining up. The Independent Petroleum Assn. of America has warned domestic gas producers that coal is marking a concerted effort for "end use" control of gas.

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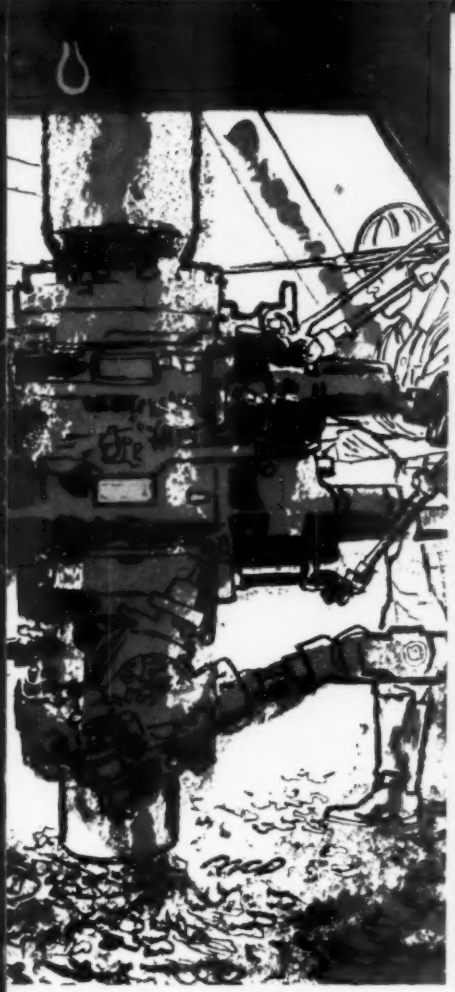
An American-flag tanker group wants the oil imports program amended. Representatives of tanker management and labor have petitioned the Office of Civil & Defense Mobilization for a hearing on the U.S. tanker role in the imports program. The tanker spokesmen want the Administration either to require 50% of oil imports to be carried in U.S. flag tankers, or to give the tanker owners individual oil import allocations. The petition was filed on behalf of 12 tanker companies and about 8 labor groups.



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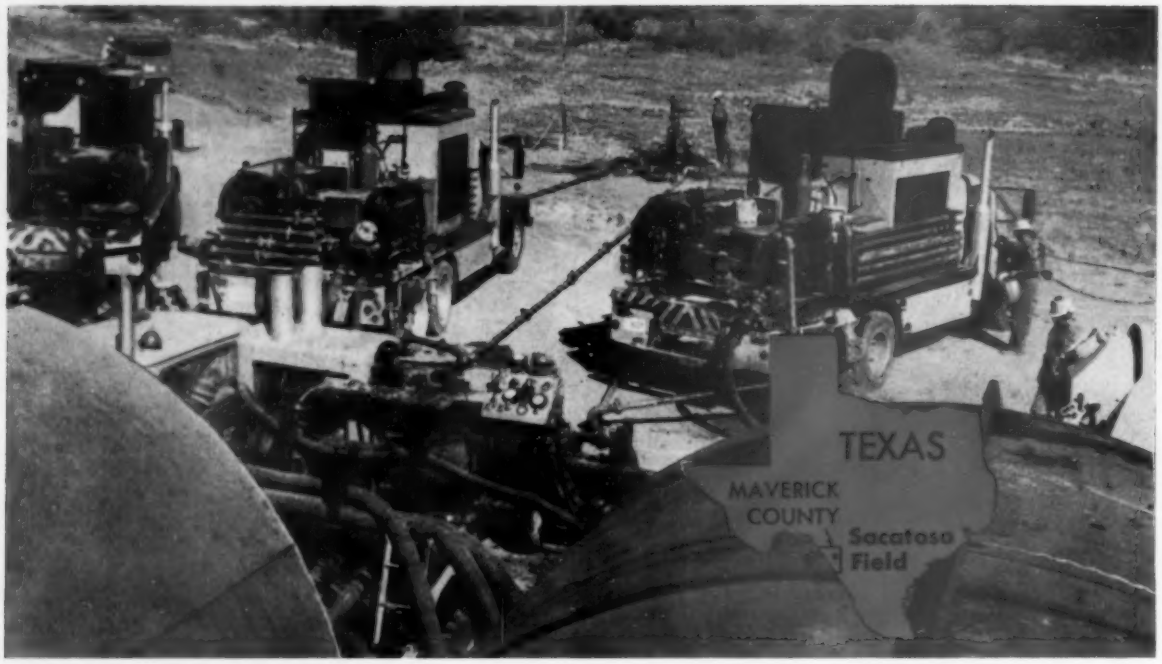

PUMPING EQUIPMENT at work on fracturing program by Continental Oil Co. in Sacatosa field, Maverick County. This . . .

Frac Experiment Pays Off Two Ways

Continental Oil Co.'s experimental fracturing program in Southwest Texas is demonstrating the value of applied research in two ways. First, it is helping management solve a difficult economic problem.

The company has a 145,000-acre lease on the Chittim ranch, Maverick County, on which it found San Miguel sand production in a stratigraphic trap lying across the huge Chittim Arch.

Conoco is pushing into an extensive drilling program—with some 300 development wells planned—and the total might go much higher (PW—Aug.7'59,p21).

Until quite recently, however, it appeared rather doubtful whether development of the holdings would be an economic success, mainly because of the low permeability of the producing formation.

Unless some way could be found to get sufficiently high sustained per-well production at reasonable cost, there seemed to be little justification for developing the field.

But by coordinating its research and production staffs' efforts in a jointly executed experimental project, Conoco has succeeded in solving the problem, and in achieving productive wells economically.

Wells that once pumped 6 b/d or less, now yield 50 b/d and more on a stabilized basis as a result of the fracturing.

Second, the data obtained promise to add materially to industry knowledge on fracturing by substantiating some of the basic theories.

The experimental work has been under way for 2½ years and may require as much as another year to reach final conclusions.

But, say the researchers, the findings are expected to help settle some of the technical discussion points, such as:

- The direction of the fracture when it leaves the well bore;
- Whether the fracture continues to follow the same path;
- How far the fracture will travel;
- Whether the fracture is concentric around the well bore;
- The effect of the shooting pattern on the ultimate geometry of the fracture;
- The relative merit of varying sand concentrations;
- The validity of the generally accepted assumptions that most fractures are 0.1 in. thick and will accommodate two grains of sand.

To solve the big problem of a decided lack of permeability at Sacatosa field, the project site, Conoco started with existing field data.

The field is producing from the San Miguel No. 1, a section averaging slightly more than 20 ft. thick and 1,400 to 1,600 ft. deep.

Average porosity is about 28%, but the extremely hard consolidated sand has a horizontal permeability of only about 4 or 5 millidarcies. Vertical permeability is only about half that much.

The first move was to do enough field work to determine whether it was feasible to go any further.

The initial findings indicated that the possibilities warranted the risk and expense of the experimental project.

The next step involved the use of one of the largest computers available to determine the optimum completion procedure.

Using the specific data from the first wells drilled in the field, Conoco began introducing unknown variables and running the resulting questions through a computer.

To test out indicated optimum well-stimulation procedures, the variables were juggled.

The company used an International Business Machines 704 computer.

The total volume of injected fracturing fluid has ranged from 60,000

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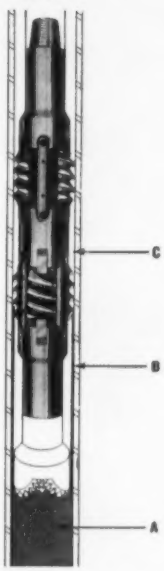

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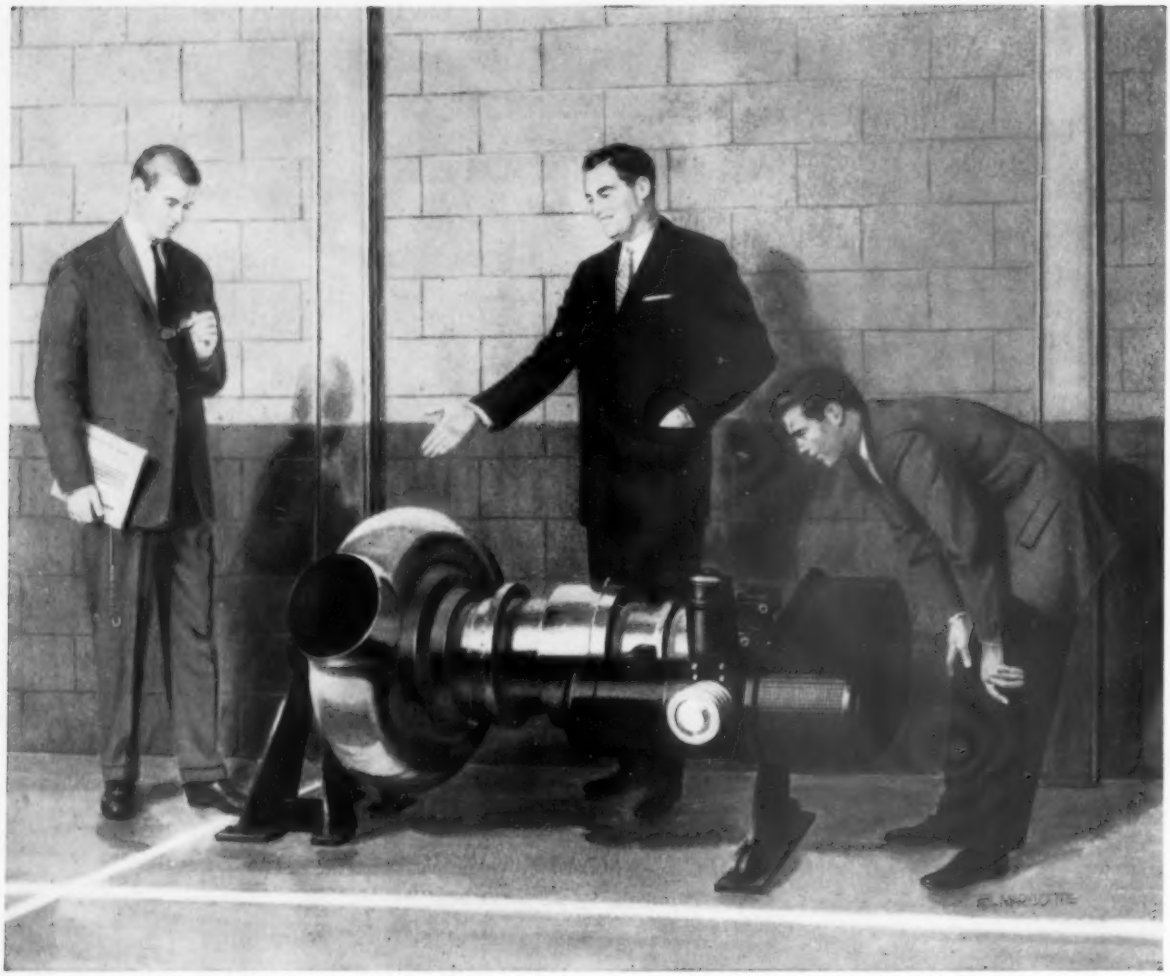

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gal. to 180,000 gal. per well. A typical example is a recent job in which 116,000 gal. of lease oil and 175,000 lb. of sand were used.

This was the 10th well fractured in the 12-well experimental program. The well, No. 41-1, was drilled to a total depth 1,526 ft.

The formation was perforated on a horizontal plane with an 8-way JRC Fract Jet (⅜-in. holes) at 1,468 ft., approximately in the middle of the pay zone.

The well was cased with 5½-in. pipe, and 2-in. tubing was run to about 6 ft. above the perforations.

At the wellhead, two 2-in. lines from the pumpers were fastened to two connections into the annulus.

This particular fracturing job was performed by the Dowell Division of Dow Chemical Co., using three Allison-engine-equipped trucks that delivered a total of 1,800 hp. to the wellhead.

A blender was used to mix the lease oil and sand—20/40 mesh, angular-shaped Poteet sand. It was not angular enough, however, to be abrasive.

Bottomhole temperature was 110F.

The formation broke at a pressure of about 2,500 psi., and began taking the oil-sand mixture at the rate of about 30 bbl. per minute.

The operation started with the injection of 30 bbl. of untreated crude, followed by 30 bbl. of ADOMITE-treated crude.

One truck was used to build up pressure to the breaking point.

The pressure went to 500 psi. in one minute, then up to 1,000 psi., where it was held for nine minutes.

The build-up continued to 1,500 psi., was held there for 9 minutes, then pushed within the next 2 minutes to 2,500 psi.

When the formation ruptured at this point, the pressure immediately fell back to around 2,000 psi.

Total time required for the breakdown was 21 minutes.

Immediately after the breakdown, the other two pumpers were brought in at full speed and the injection rate went to 30 bbl. per minute.

Total time for the fracturing operation, including the stage breakdown, was 138 minutes.

Indications are that the horizontal fracture extends as much as 200 ft. from the well bore.

This, of course, is subject to final evaluation, as is the determination of the exact shape of the fracture.

After completion of the job, the shut-in tubing pressure was 800 psi. and shut-in casing pressure was 1,000 psi. Production immediately went up to more than 100 b/d, but the sustained rate hasn't yet stabilized and will be somewhat lower.

The well cost about $15,000 to drill and complete. The cost of the fracturing job, including equipment rental, materials, etc., came to just under $10,000.

So, say Conoco officials, the costs balanced against the production results achieved make the technique economically sound.

For Sacatosa field, both field performance and computer calculations indicate that about 60,000 gal. is about the right volume of fracturing fluid.

This figure represents a rare coincidence in that Conoco researchers picked that figure, after studying well data at the start of the program, "simply as a number to start with."

As it happened, when computer answers came in, that same figure showed up just about in the middle of the optimum range.

The ratio of 1½ lb. of sand per gal. of fluid at this point appears to be the optimum.

Fluid loss control has emerged as one of the most important factors in the success of the program.

"You must control your fluid loss

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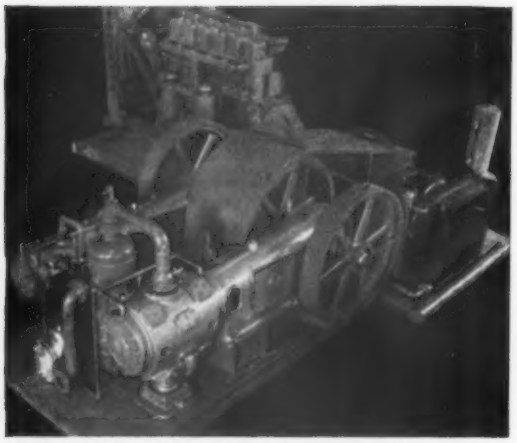
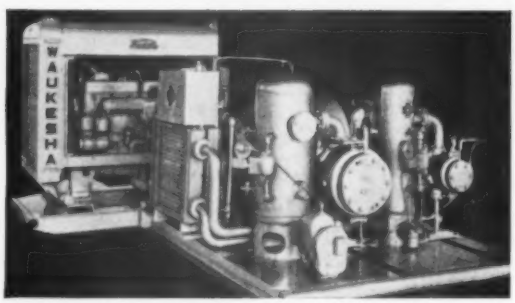
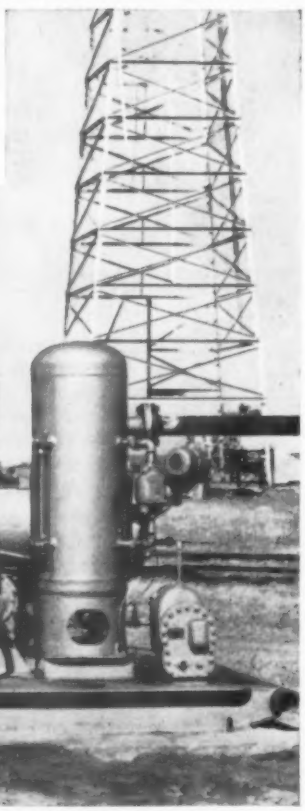


Waukesha LRORB 2894 cu. in. gas engine, 6-cyl., 8½ x 8½-in., powers 2-stage RX **Gardner-Denver** gas booster package unit.



Waukesha WAKB 1197 cu. in. gas engine, 6-cyl., 6¼ x 6½-in., powers 2-stage RX **Gardner-Denver** gas booster package unit.

Near Graham Fox Field, Oklahoma, **Waukesha 145-GZB 817 cu. in. gas engine,** 6-cyl., 5⅜x6-in., powers single stage RX **Gardner-Denver** gas booster package unit.



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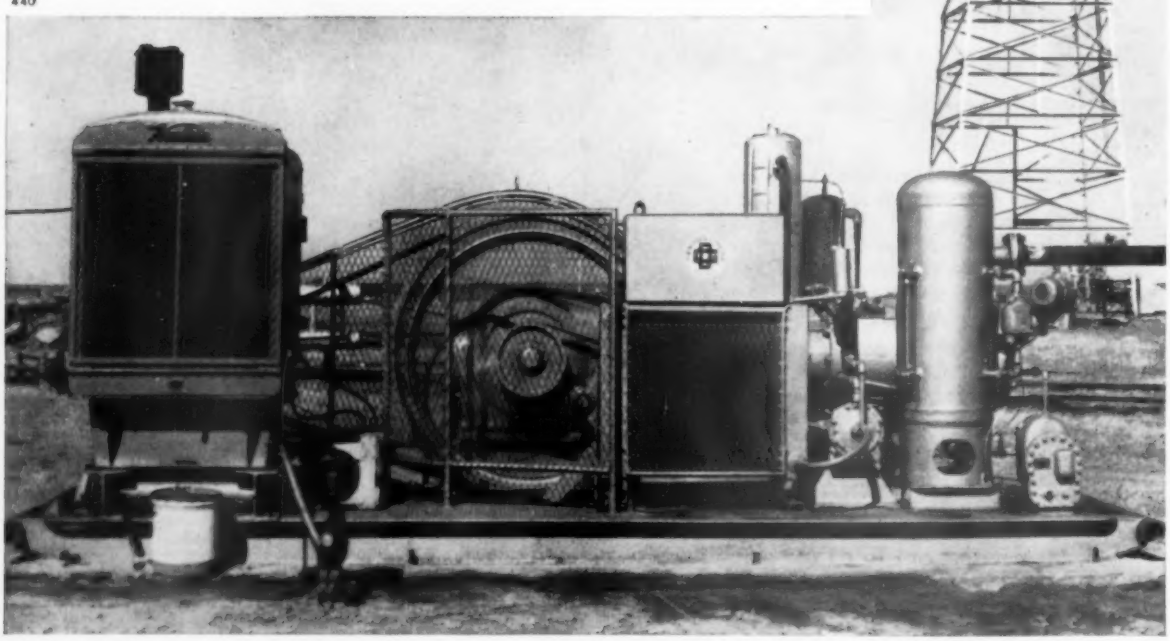

if you're going to continue to achieve your fracture," one of the researchers points out.

"It's this simple: If you are pumping at the rate of 30 bbl. per minute, and you start losing this amount to the formation, then you have got all of the fracture you're going to get, and you're not going to get any more. You might as well quit because you're wasting oil."

Untreated crude in this area will be absorbed into the formation in almost unlimited quantities.

The ADOMITE used as an additive is an agent developed by the company's production research division. It was added in solid flake form in the ratio of .05 lb. per gal. of fracturing fluid.

Crude treated with this additive normally has a loss of 20 cc. in 30 minutes measured by the revised API Code, 29 test, or 1,000 psi. differential at formation temperature.

Use of the treated crude permitted fluid loss control during the fracturing operation, assuring the achievement of a fluid wedge into the formation and a subsequent rupture.

Conoco currently is preparing to perform the last job in the experimental series. A different method of propping the fracture will be attempted. This job will involve the use of some 60,000 gal. of oil.

But the sand will not be introduced until the final 3,000 to 4,000 gal. of fluid are being injected.

The idea is to determine whether confining the sand close to the bore hole will yield as satisfactory results in propping open the fracture.

Just how wide an application the results of the project will have is uncertain. But there is an outside chance they could lead to easier methods of predicting reservoir producibility.

J. Lee Popham, head of the well engineering section, puts it this way: "I would hesitate to take the data gained from this or any other particular reservoir and attempt to apply it to another, because all reservoirs are different. But it may be possible with further study.

"There is professional skepticism among ourselves on this point, but it could lead to something like this:

"The information, the data, and the experience gained here could be used to determine in some other reservoir—before we ever drilled the second well—what we could expect to get from it in terms of production.

"But right now, we certainly don't know that. In the first place, we'd have to know something of the limitations of the reservoir, the productivity of the individual wells, and so on."

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For tubingless completions . . .

Better Bits, Special Tools Needed

Faster development of specific equipment and techniques for small-diameter wells is needed to exploit fully the advantages of tubingless completions, say M. E. True and C. B. Corley, Jr., Humble Oil & Refining Co.

It has been established, they reported this week, that the smaller tubingless completions are adequate for the producing rates in most domestic wells.

Available methods permit efficient well completion and operation and provide attractive savings, they added, but more work is needed.

In single tubingless completions, more efficient small bits and drilling rigs are needed, they said.

The two engineers point out the experience of one operator who drilled 92 such wells at depths ranging from 1,400 ft. to more than 10,000 ft.

Average savings on the wells for which cost data is available represented 19% of conventional well costs.

But the majority of these savings resulted from the use of less steel and improvements in other completion practices that could have been applied to conventional wells.

"Operators," they added, "report little reduction in the drilling cost of tubingless completions because of inferior bits in the smaller sizes and the general limited availability of rig equipment designed to capitalize on small-hole drillings."

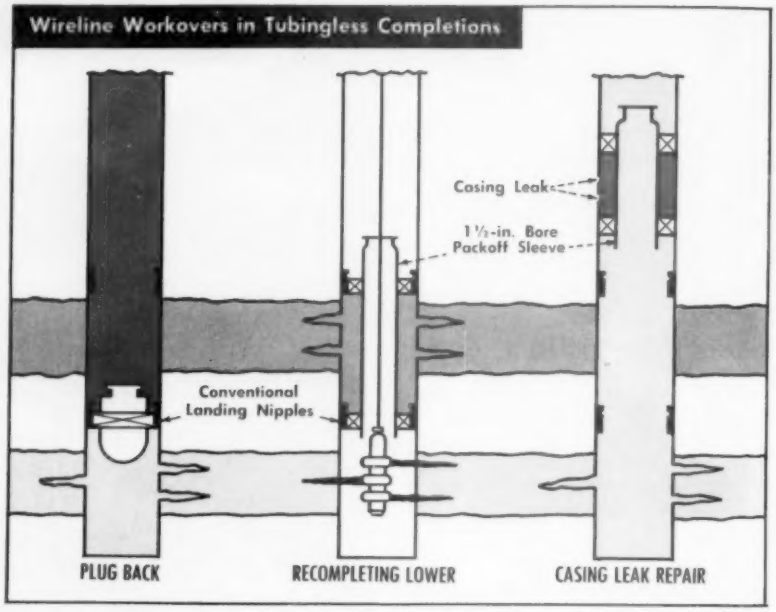
In addition, there is need for low-cost tubular materials that will provide increased resistance to wear, corrosion, and paraffin deposition, and for various specialty items of equipment, True and Corley reported.

They said that casing currently used is conventional 2⅞-in. OD, with ¾-in. to 1½-in. tubing where needed for well control or artificial lift.

"All of this pipe currently is premium priced relative to the quantity of steel involved."

The two engineers said immediate attention should be given to such items as larger bore float collars and guide shoes which retain means for blowout protection, and wiper plugs that insure effective cement displacement on primary casing cementing operations.

The specialty items they cited as being needed include wireline jet or chemical cutters and tubing perforators, and wash pipe, mills, and fishing tools for efficient recovery of ¾-in. to 1½-in. tubing from 2⅞-in. OD casing.



True and Corley said the plastic patch should be developed for 2½-in. casing with minimum restriction of the casing bore to permit continued use of all currently available pump holdowns and wireline tools.

Development of the specialty tools would result in appreciable additional cost reductions and ease of operation, they said.

In multiple tubingless completions, there is a special need for development of low-cost, versatile wellhead equipment, especially for low-pressure service.

This type of wellhead equipment, they said, would permit quick change from either single or multiple casing hanger systems.

True and Corley noted that current wellhead and casing hanger arrangements do not facilitate low manufacturing costs and sufficient versatility in converting to a system for fewer casing strings than was anticipated when drilling began.

They suggested that consideration be given to entirely new designs in wellhead equipment for this application.

In current equipment, they said, "little standardization has been effected, and costs are increased by the special design and order system imposed."

The big shortage in applying artificial lift to tubingless completions, they said, is in providing this type of lift without requiring a multiplicity of surface installations. As an example, they cited the case where a triple completion was equipped with rod pumps and three pumping units were set head to head over the same hole.

They said demand exists for such "revolutionary" methods as:

- A hydraulic subsurface pumping system that is not critical as to the paraffin or solids content and lubricating characteristics of the power fluid; and
- A small-volume, electrically driven subsurface pump and conductor system which would minimize downtime for servicing and eliminate the necessity of auxiliary tubing strings.

Equipment and techniques are available to perform all types of workovers in tubingless completions, they added, but there is incentive to development of specially designed equipment emphasizing automation.

True and Corley envision even lower operating costs and increased efficiency by using "highly-portable unitized units that would contain hoists, masts, low-volume high-pressure pumps, and other necessary items."

They made their report this week before the annual meeting of the Petroleum Mechanical Engineering National Conference, in Houston, which was sponsored by the Petroleum Division of the American Society of Mechanical Engineers.

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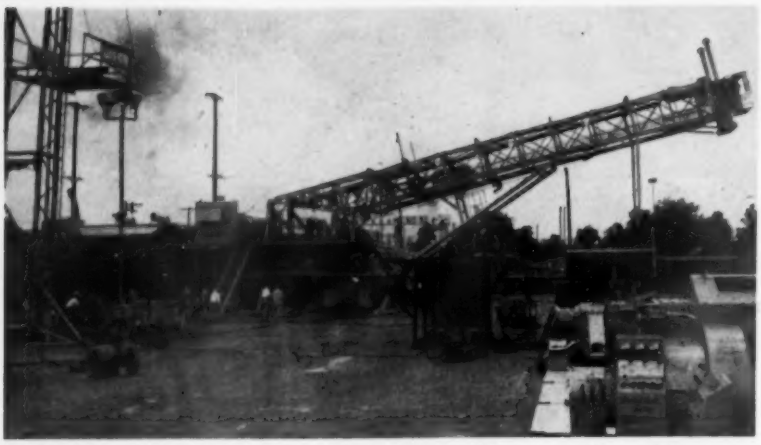
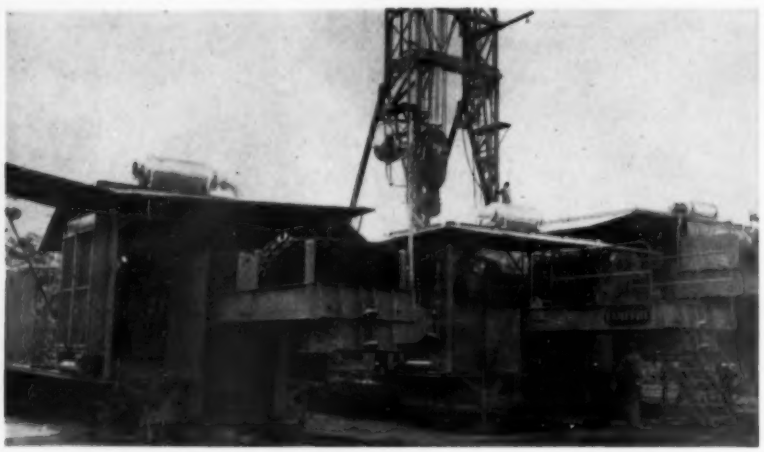
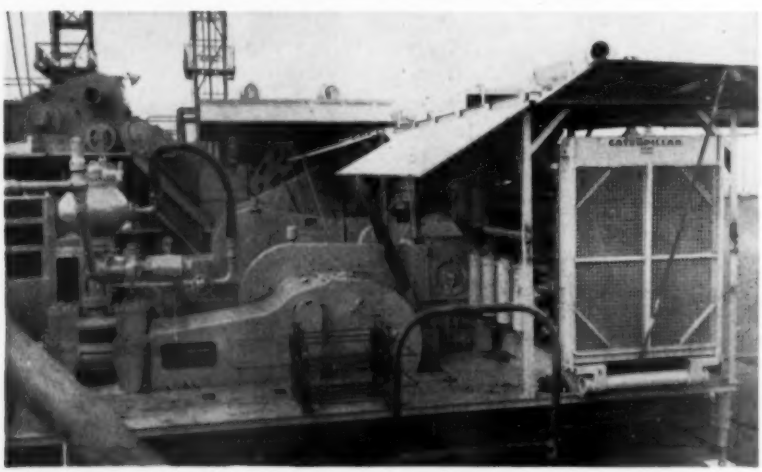
Ideco's Giant Rig is Bound for Libya



TRAILER-MOUNTED 127-ft. Ideco 300 mast, capable of handling 12,960 ft. of 4½-in. drill pipe, gets final testing in Beaumont, Tex., before shipment overseas to Libya.



COMPLETELY UNITIZED RIG has all major components mounted on semitrailers. Camdrill International, Inc., who will use it, says it is the largest mounted rig in operation.



POWER COMPONENTS, such as drawworks and Continental-Emsco and Ideco slush pumps, are driven by Caterpillar D-397 engines equipped with Clark 24-in. converters.

A giant mobile drilling rig, called the world's largest trailer-mounted rig, is undergoing final testing prior to shipment to Libya for use by Camdrill International, Inc.

The big rig, built by Ideco, Inc., one of the Dresser Industries is of the basic Ideco Desert Rambler design. It was put together in the company's Beaumont (Tex.) plant according to Camdrill specifications.

Named Desert Star No. 2, the rig will be used in the Libyan drilling program being conducted by Oasis Oil Co. of Libya.

The unit's five semitrailers include one for the drawworks, one for the mast, two for the pumps, and one utility trailer.

The Ideco drawworks are powered by two 375-hp. Caterpillar D397 engines through a two-engine, four-shaft in-line compound.

Except for the tanks, the mud system is completely wheel-mounted on two trailers, which are equipped with tandem 30-ton bogie units.

Another Cat D397 diesel drives the Continental-Emsco D300 slush pump.

An Ideco 600 slush pump is powered partly by still another Cat D397 engine, and partly through a propeller shaft drive from the drawworks.

The rig has a nominal drilling depth rating of 5,000 ft. to 8,500 ft.

The 127-ft. Ideco mast, which is capable of handling 12,960 ft. of 4½-in. drill pipe, has a hook load capacity of 300,000 lb. with an eight-line string-up.

The Ideco H-525-D double drum drilling and workover hoist is mounted on the drawworks trailer.

For drilling, the drawworks trailer is backed up squarely against the mast trailer and secured in place by a mechanical locking device.

Special safeguards necessitated by desert conditions are incorporated in the unit's design and operation.

Oversize radiators are mounted on all of the engines, plus dual air cleaners and fuel filters.

Special filters enable the engines to burn either low-grade diesel oil or crude, whichever is available.

In addition, all chains are completely sealed, and only one chain to the rotary needs to be disassembled when the rig is moved.

Because of the supply problem in desert operations, the rig is equipped with engine and machinery spare parts. The utility trailer carries a complete set of fishing tools and a mechanic's workshop.

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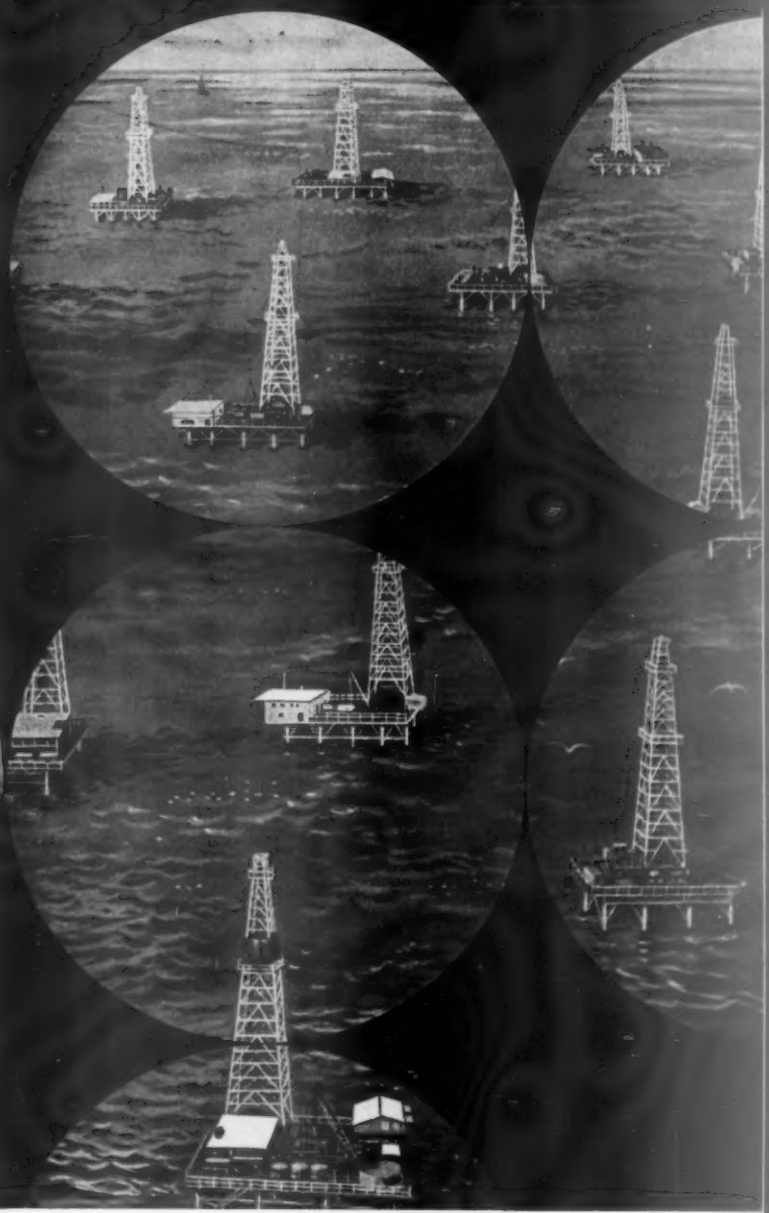

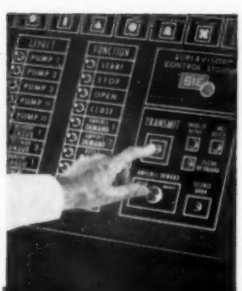

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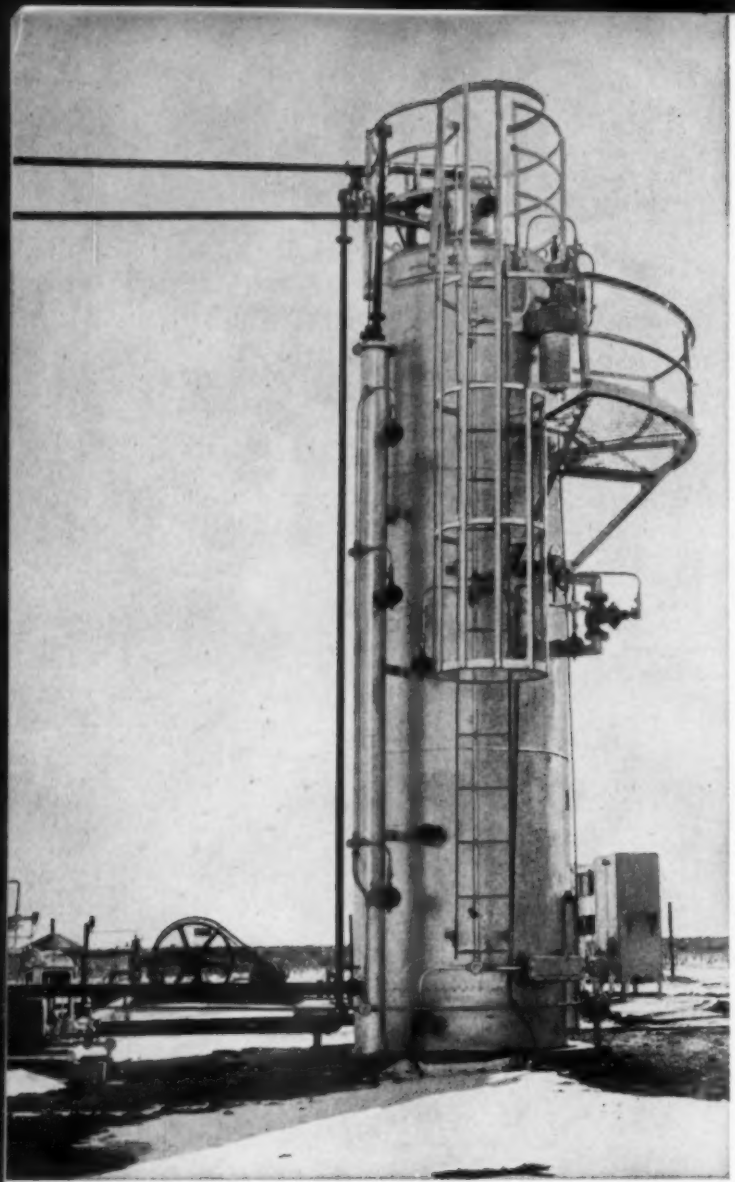

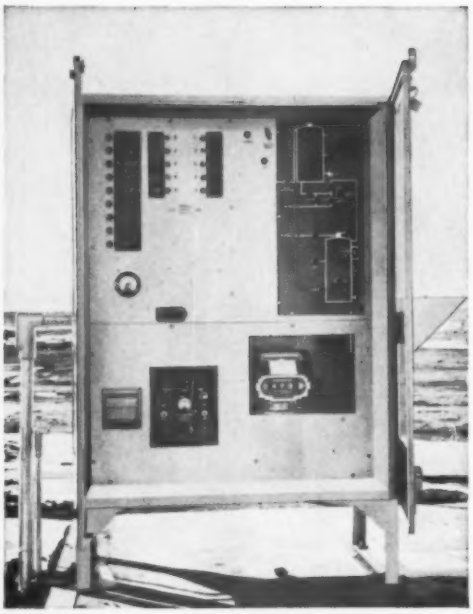

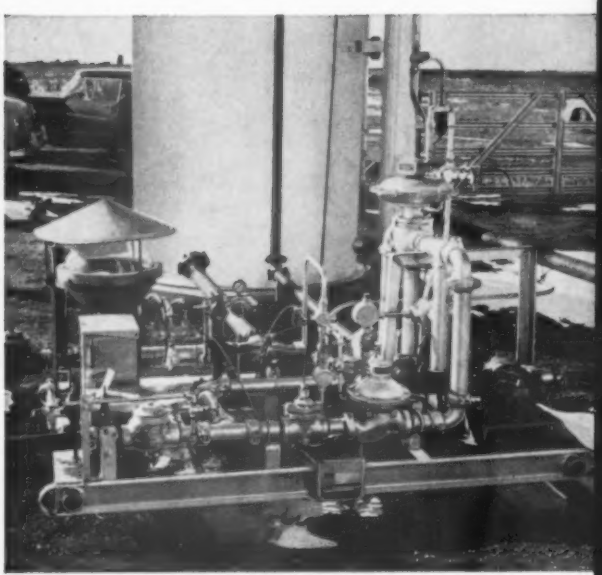

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This newest addition to the BS&B PHANTO-GAGER line of LACT units was recently put into service on a Texas Panhandle lease. Unlike other positive volume type metering systems, this unit has the unique advantage of delivering a continuous flow of metered oil to the pipeline.

In addition to eliminating the cycling of the pipeline pump, this PHANTO-GAGER, because of its completely closed system, conserves more of the lighter hydrocarbons and increases the gravity of the crude delivered. It also eliminates the necessity for additional crude storage facilities.

Your BS&B Man will gladly help you work out details for a similar installation on your lease. Why not call him now?

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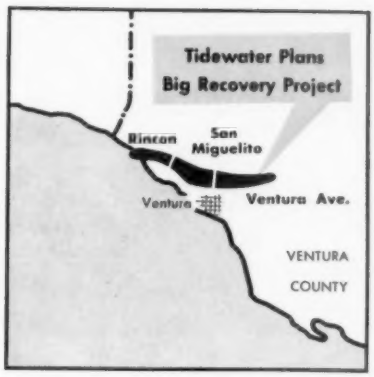


Dual Program Set; 70% Recovery Seen

Tidewater Oil Co. is planning a secondary recovery program that is expected to increase ultimate recovery by more than 200-million bbl. from its leases in the Ventura Avenue (Calif.) field.

The Tidewater holdings—one of the company's largest production operations in California—include four leases in the eastern half of the field in Ventura County.

More than 15,000 b/d is produced from the 344 wells now in operation on these leases.

The project would involve blocks C and D, with waterflood planned for block C and gas injection for block D.

The two blocks are each more than 4,000 ft. in thickness, says Tidewater, and are separated by the Barnard thrust fault. They contain a total of 22 producing zones.

Block C has 16 producing reservoirs between 4,000 ft. and 7,000 ft.

Ultimate primary recovery in this block has been estimated at 162-million bbl., with 25-million bbl. yet to be produced.

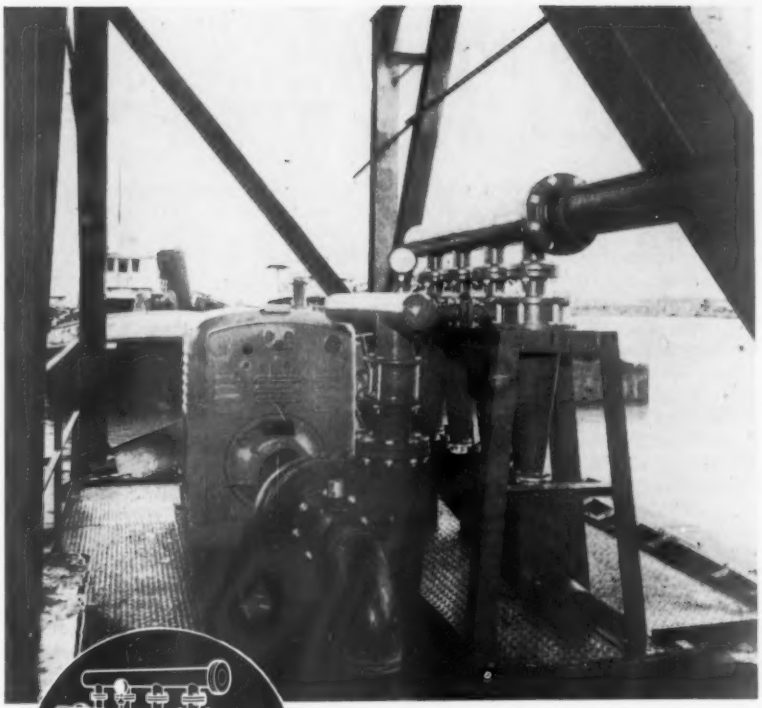
Estimates resulting from engineering studies indicate that waterflooding will increase ultimate recovery to 271-million bbl., an additional recovery of 109-million bbl.

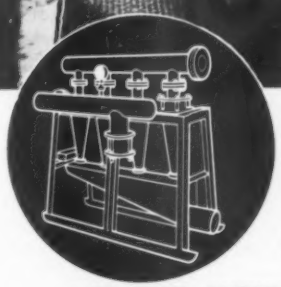
Block D lies below the Barnard thrust fault and includes six producing reservoirs.

Ultimate primary recovery from Block D is estimated at 132-million bbl., of which 31-million bbl. remain to be produced.

Pressure maintenance through gas injection is expected to increase recovery by approximately 100-million bbl.

Tidewater currently is discussing a basis of unitization of the royalty interest with royalty owners in order to start a pilot flood.





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From the Pacific coast to the mid-continent, from the Arctic to Argentina, Demco Desanders have proved their ability to lower drilling costs. Operators everywhere have found these versatile units to be the most efficient, most economical means of controlling sand and solids in drilling mud.

The Demco Desander removes virtually all these solids—in particle sizes from 320 mesh and larger. This reduces mud weight, improves other of the mud properties. Circulation losses are minimized and penetration is faster. Mud and Chemical losses from jetting of pits are held to a minimum. This removal of abrasives also reduces maintenance costs. Bits, pump, fluid end parts, tool joints, wash pipes, mud lines and valves *all last longer.*

Major wear surfaces in Demco Desanders are fully protected. Cone liners and under-flow orifices are of ceramic materials which provide maximum resistance to abrasives. Sizes range from the Demco Model 10 single cone unit, with a capacity of 200 GPM, to multiple cone units with capacities up to 1200 GPM. All models are available with or without power and centrifugal pump.

For details or a quotation on a Demco Desander *tailored to your specific needs,* call or write your Demco representative or our Oklahoma City office—today.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

If the history of drilling is plotted into the future, the 50,000-ft. hole will be drilled by 1990.

The projection was made this week in Houston, Tex., by R. Q. Fields and M. Lebourg, of Schlumberger Well Surveying Corp., before the Petroleum Mechanical Engineering National Conference sponsored by the Petroleum Division of the American Society of Mechanical Engineers.

Fields and Lebourg also predicted that the 50,000-ft. hole would have a bottomhole temperature of between 450F and 850F and a mud pressure between 28,000 and 41,000 psi.

This prediction, too, was based on a projection of curves plotted on conditions encountered so far in drilling.

They said pressures and temperatures represented the two biggest problems confronting the logging and perforating industry in developing tools capable of operating at such a depth.

Fields and Lebourg told how Schlumberger has had to keep building new testing Laboratories in order to meet the requirements of deep drilling. The latest Schlumberger laboratory has facilities for testing tools of working pressures of 30,000 psi. at 450F, they said.

•

Despite the high oil-finding costs in Alaska, the new state may produce more oil per dollar of outlay than any other state, according to William H. Morris, Sinclair Oil & Gas president.

This will result in part, he said, from the fact that oil companies in Alaska are able to obtain leases in large blocks and do not have the spacing restrictions of other areas.

He added that increased interest in Alaskan oil has resulted from two problems confronting the U.S. oil industry. One is the squeeze between rising operational costs and low selling prices; the other is the proration restrictions in many states.

Because of the world-wide surplus of oil, however, Morris told the Greater Anchorage Chamber of Commerce someone will have to find markets for Alaskan oil against the fierce competition from many nations.

"Those who produce and market your oil will need your understanding and your support," he said.

•

Carter Oil Co. was high bidder with $41.18 per acre for 160 acres at the recent Blackfeet Indian agency lease sale in Montana.

The Carter acreage is in section 33-32n-6w, Glacier County, southwest of production at Cut Bank.

The sale brought total bids of $184,967 for 4,208 acres of tribal lands and 7,141 acres of allotted lands.

The Blackfeet Tribal Council, however, later rejected bids on 3,795 acres of tribal territory.

•

Pan American Petroleum Corp. has obtained a court order enjoining a former employee from using or disclosing confidential information

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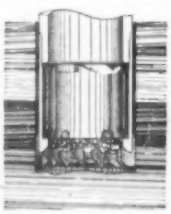
ARE AS VITAL AS A VISA!

...and it's the only Junk Catcher with interchangeable Magnetic and Dog Type Catchers.

Wherever you may be—from here to breakfast—you'll find that the Globe "Model N" is the standard Junk Catcher for the industry. It's a fast, dependable fishing tool so simple in design, construction and operation that any crew can run it with complete assurance of full recovery of all types of loose junk.

The Globe Junk Catcher uses both a magnetic or dog type catcher—and each is interchangeable so that only one complete outfit is required. Operators appreciate the maximum flexibility in operation and recovery with a minimum of equipment and investment.

Why **don't you investigate the advantage of this low cost "insurance" on your next job? Write for descriptive literature.**



Globe Magnet type catcher. Circulation flows between basket head and magnet.

Both the upper and lower catcher dogs serve to hold ANY load securely while coming out of the hole.

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The new D342 Spark-Ignition Engine... lowest cost-per-horsepower gas engine

The new Caterpillar D342 Spark-Ignition Engine has the lowest cost per horsepower of any gas-operated engine you can choose.

You can select either the 7.5:1 compression ratio—for butane, propane or field gases—or the maximum efficiency 10:1 compression ratio engine for methane-type gas operation. And you can switch to diesel operation simply by changing pistons and fuel systems.

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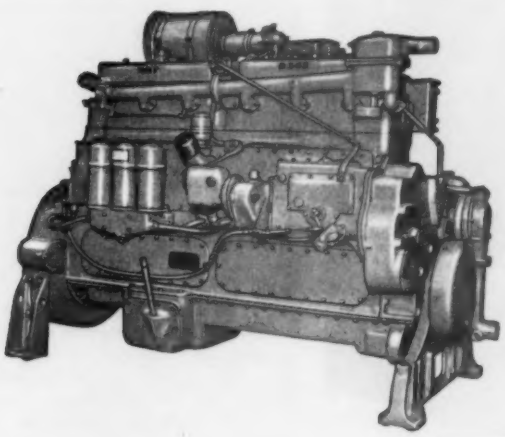
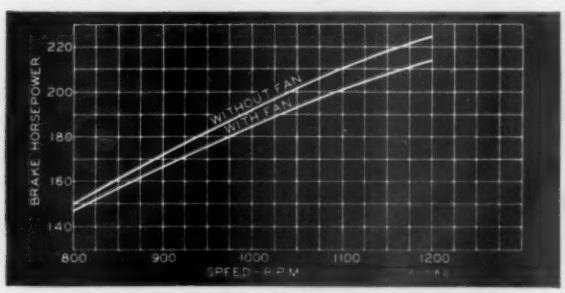
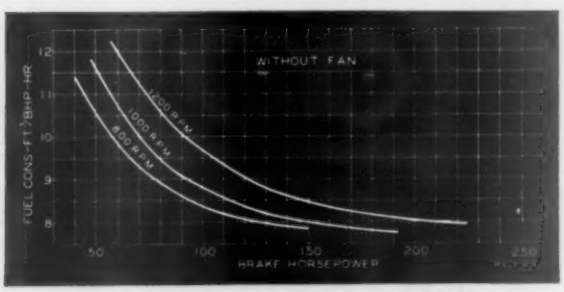


With the 7.5:1 compression ratio, the D342 Spark-Ignition Engine produces 200 BHP at 1200 RPM, without fan. At the same RPM without fan, the 10:1 compression ratio produces 225 BHP.

The D342 Spark-Ignition Engine has this safe, positive ignition system



Highest horsepower per dollar you can buy 10:1 compression ratio



Curves illustrate low fuel consumption 10:1 compression ratio

gained during employment with the company.

Russell A. Weingartner, a geophysical program supervisor until termination Aug. 5, entered a confession of judgment acknowledging that the allegations were correct and consenting to the injunction, granted by the Tulsa (Okla.) district court.

The complaint alleged that Weingartner, by reason of his employment, had access to confidential maps, drawings, and other information related to prospective producing structures in areas where Pan Am operates.

Pan Am contended that he still has copies of valuable confidential data, plus other data he has memorized, which he will disseminate unless restrained.

Weingartner acknowleged transmission of maps and other data to a Houston (Tex.) independent.

•

The Saskatchewan Mineral Resources Dept. will offer 1,467,655 acres in an exploration permit sale Oct. 6.

Included are five parcels in the Consul-Cypress Lake district, in the extreme southwest corner of the province.

Another five parcels are in the Tomkins region, 15 mi. west of Jurassic oil and gas production in the Fosterton-Cantaur area.

A single parcel is in the Medham district, about 25 mi. north of Hatton gas field.

The remaining acreage is in the vicinity of Regina.

•

An Alberta committee has approved public safety aspects of the proposed nuclear blast in the Athabasca tar sands.

The project, which is aimed at releasing the oil from the sand by means of an underground nuclear explosion, is proposed by Richfield Oil Corp.

The committee approval follows previous endorsement given by a federal technical committee.

•

Only 20,186 acres were taken at the sale of Valencia County (N.M.) leases held by the United Pueblos—less than half of the amount of acreage offered.

The Acoma and Laguna Pueblos offered a total of 46,830 acres. The total bonus paid at the sale amounted to $67,794.

Sun Oil Co. was high bidder, paying $10.25 per acre for a parcel in section 2-7n-7w.

•

The 29th yearbook of the National Oil Scouts & Landmen's Assn. is available.

The 1,136-page book contains a review of all exploratory tests, discoveries, new pays, extensions, and acreage under lease during 1958 in 34 states including Alaska, and in all of Canada.

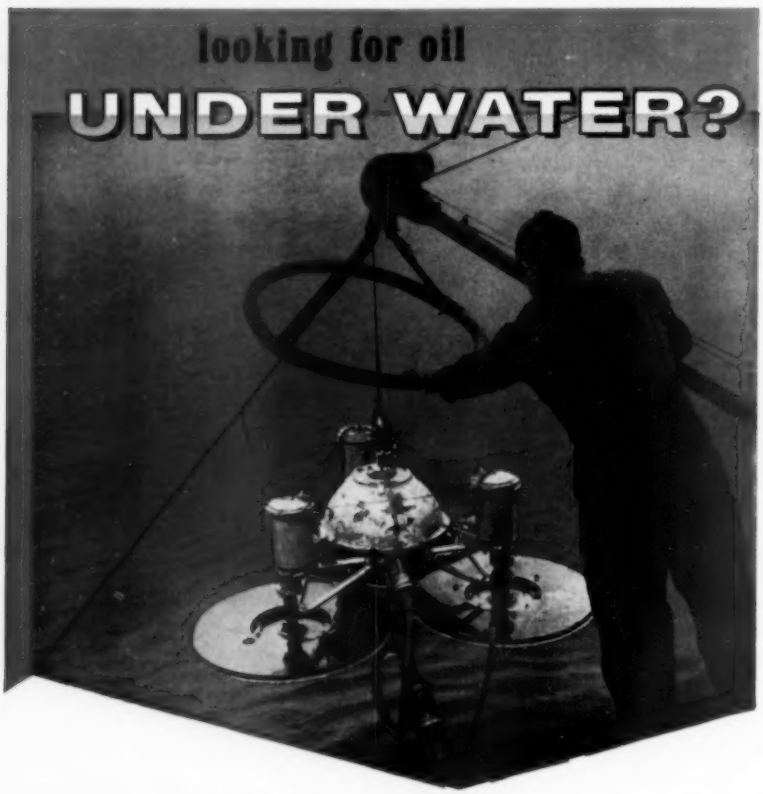
It also lists oil and gas fields, giving both their annual and their cumulative production. Abandoned fields are included.

The association's address is P.O. Box 1095, Austin 66, Tex.

•

One new oil field—Ab Lake South, in Gallatin County—was discovered in Illinois during August.

The state's August drilling report, released last week, says 221 holes were drilled during August. Of these, 102 were completed for oil production and two yielded gas, resulting in a success ratio of 47%. Total production of



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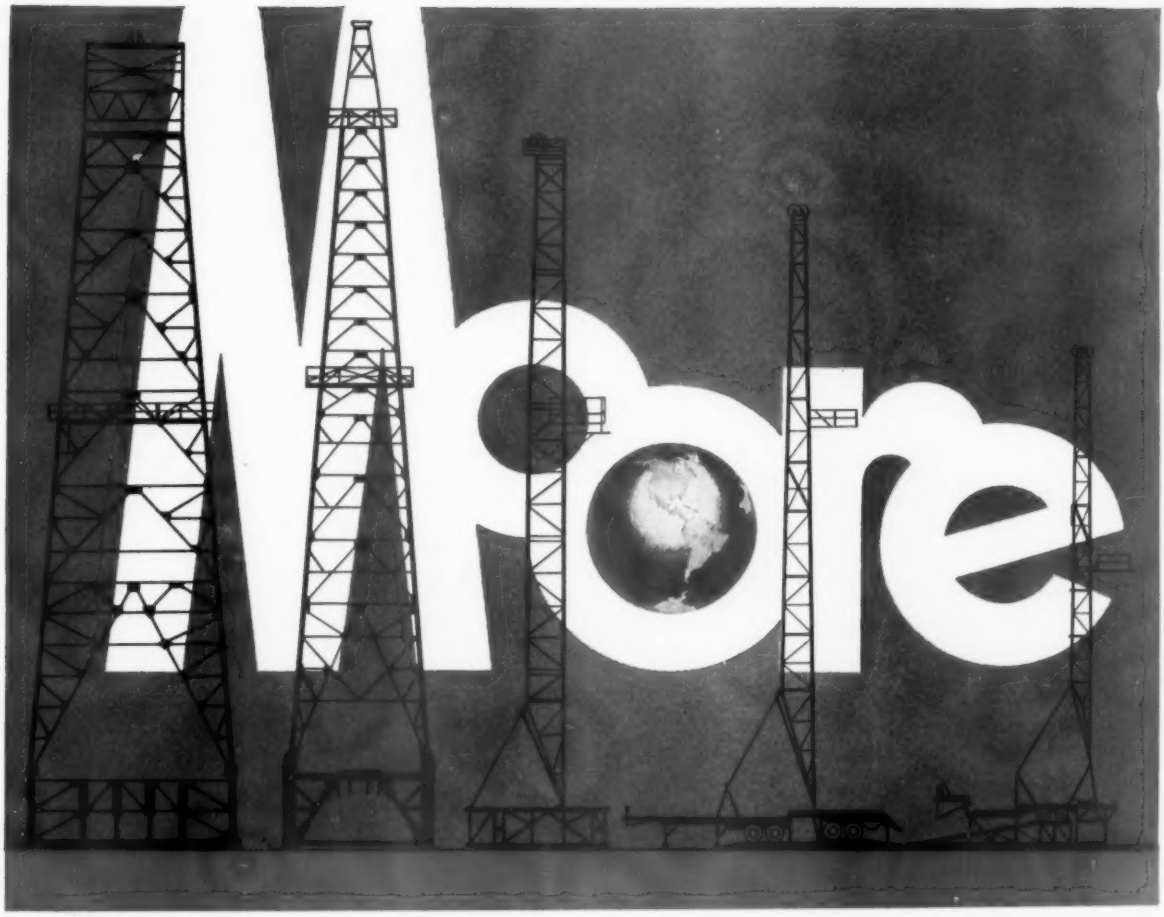

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Plan '59

To modernize now for growth and profits

Goes Into High Gear

In 1959, industry will spend more money than ever before to modernize its plant and equipment. But it is not spending enough to do the job that needs to be done.

Manufacturing companies* now plan to spend a total of $24.5 billion on modernization in the four years 1959-1962. This will be enough to replace roughly 70% of the obsolete facilities that were on hand at the beginning of 1959. But it will still leave us far short of our goal. It would take several years, at a higher rate of investment than is now planned, to wipe out obsolescence and give the U. S. a truly modern industrial plant.

These facts stand out from the 12th annual Survey of Business' Plans for New Plants and Equipment just completed by the McGraw-Hill Department of Economics. This new survey shows that industry has made a remarkable start on the modernization job that a previous editorial in this series described as "the most expensive task to be performed in America in this new year of 1959." The full cost of modernization has been found by the McGraw-Hill Department of Economics to be $33.3 billion for manufacturing, and $95 billion for all business.

For the past several months, McGraw-Hill publications have been devoting special attention to new developments in plant and equipment that offer opportunities for modernization. Our special effort to help industry in this regard has been called "Plan '59": to modernize *now* for growth and profits. This editorial will summarize the progress made so far with "Plan '59" and point out some of the areas where business and public policies can do still more to accelerate the modernization drive.

A Good Start

Business investment in new plant and equipment has picked up sharply since the low point of the 1958 recession. Plans for 1959 now show a 7% increase over 1958 for total capital investment. And the increase in expenditures for modernization is much sharper. Moreover, companies already have substantial plans for the years after 1959. New orders for industrial machinery, which are a good index of modernization plans, also are running well ahead of last year.

For the four-year period 1959-1962, manufacturing companies expect, on the average, to devote 65% of their plant and equipment outlays to modernization. This is the highest proportion reported in a McGraw-Hill survey since 1950. In dollar terms, manufacturing companies plan to spend $24.5 billion on modernization during the next four years.

This is an impressive figure, but it does not look so large when compared with the total need

*Excluding petroleum refining, which is reported as part of the oil industry in the data discussed in this editorial.

for modernization in manufacturing industries. As noted above, a previous McGraw-Hill study (conducted in August 1958) found that it would cost almost $35 billion to replace all the facilities that manufacturing companies then considered obsolete. Thus, present plans for modernization are enough to wipe out only 70% of the backlog of obsolete facilities by 1962—and this makes no allowance for the additional facilities that will be made obsolete by new machines and new processes introduced during the next four years. When these new developments are considered, present plans for spending may represent only half the job that will actually need to be done.

How To Accelerate

What can be done to accelerate the drive to modernize our industrial plant and equipment? Two of the greatest aids would be:

(1) Improve present provisions under the tax law for depreciation, to help industry retain more of the money it needs to carry out this massive job of modernization;

(2) Contain inflation, to preserve the purchasing power of the money industry sets aside to replace obsolete facilities.

At first glance, the supply of funds from depreciation allowances appears to be more than adequate. For manufacturing as a whole, depreciation allowances—the primary source of cash for modernization—will total $8.3 billion in 1959, compared with present modernization plans of $6.4 billion. Thus some extra funds will be available to support a further step-up in modernization in 1960.

Unfortunately, however, these depreciation funds are not evenly distributed from industry to industry, or from company to company. For example, in several of the metalworking industries, the prospective flow of cash from depreciation during the next four years is much less adequate than for manufacturing as a whole. These are industries with relatively large modernization backlogs, and they also are industries made up mostly of small or medium-size companies that have difficulty tapping the public money market.

As a result of these industry and company differences, there are many individual cases where shortages of funds limit the amounts of modernization now planned. In the McGraw-Hill survey, nearly half of all companies participating said that they would spend more on new plants and equipment if the depreciation allowances permitted by the tax law were increased substantially over the next few years. Most of these were relatively small companies. Their answers suggest that revision of the tax rules on depreciation should receive the most careful consideration as a spur to faster modernization.

The problem is complicated also by the threat of further increases in the national price level, which would necessarily include prices of capital goods. If "creeping inflation" resumes its march during the next four years, depreciation allowances based on present costs will be much less adequate for future needs. This points up the importance of national economic policies to maintain price stability. Unless this can be maintained, industry's dollars will not go far enough to do the modernization job that is needed.

Plan '59 Carries On

Industry's drive to modernize is now well underway. It can make a key contribution to our national strength and prosperity in 1959 and the years ahead. But the biggest part of this job is before us. It is up to the policy makers—in both business and government—to see that the job is done.

This message was prepared by the McGraw-Hill Department of Economics as part of our company-wide effort to report on opportunities for modernization in industry. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or part of the text.

Donald C. McGraw

PRESIDENT

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Core Recovery

That's Welex's recovery average in the difficult Louisiana Gulf Coast area. In Louisiana, as well as in other areas, Welex leads in Side Wall Coring. Here is proof that with Welex on your well, you get more cores. The exclusive design of Welex's coring gun gives you bigger cores. It's the next best thing to being inside the well yourself. If you like to "feel the material" before buying a suit, you'll choose Welex Side Wall Coring service. With a Welex core in your hand, you can actually "feel the material" before making the decision that may mean success or failure of your well. These outstanding results are possible because: 1. Welex's exclusive stabilizer centers the coring gun, permitting all cores to be fired at a fixed stand-off from the formation. 2. Rectangular design of the gun permits core recovery in deep holes — even holes less than 6″ in diameter. 3. Both powder loads and core barrels can be varied to meet different conditions in the same hole. That's why Welex Side Wall Coring consistently gives you more data.

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crude in Illinois in August is estimated at 6,515,000 bbl.

•

Texstar Corp. will acquire the assets of Texas Calgary Co. if Texas Calgary stockholders approve the move at a meeting next week.

In the first half of 1959, Texas Calgary had a net oil production of 89,073 bbl. and a net gas production of 116.3-billion cu. ft. from various interest holdings in the U.S. and Canada.

It also owns and operates a pipeline terminal and storage facilities near Dover, Del., and a small refinery at Carrizo Springs, Tex.

Nonproducing leases held by Texas Calgary are located in Texas, New Mexico, Utah, Wyoming, Alberta, and British Columbia.

One share of Texstar stock for eight shares of Texas Calgary stock is the basis for the proposed transaction.

•

Atlantic Refining Co. is moving its Kansas, Oklahoma, and Texas Panhandle regional land exploration and production office to Dallas, and combining it with its eastern division office there.

The move will become effective on Jan. 1, 1960.

District offices at Oklahoma City, Great Bend, and Amarillo are not affected except that they now will report to Dallas. The present general manager in Dallas will head the combined operations.

Some 40 employees are involved in the transfer from the Tulsa office, which has been in operation since 1919.

•

Engineering

Hughes Tool Co. has developed a new rock bit for soft, top-hole formations which is said to increase footage by 30% and the penetration rate by 18%.

The OSC-3A Tri-Cone bit features an increase in tooth height to speed penetration. And the cutting action is said to be improved by the fact that fewer teeth make contact on the hole bottom. This gives more ventilation and increases the self-cleaning action, Hughes says.

•

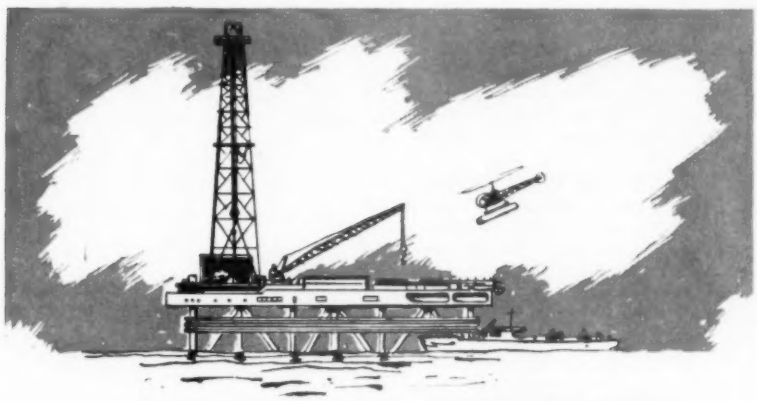
Drilling Highlights

Arizona—E. B. LaRue, Jr., and Texas Pacific Coal & Oil Co. No. 1 Navajo, section 18-40n-28e, Apache County, recovered 660 ft. of very heavily oil- and gas-cut mud, 180 ft. of water- and gas-cut mud, and 60 ft. of gas- and mud-cut water on 2-hour test at 5,610-750 ft. in the Barker Creek (Pennsylvanian). The wildcat is more than 3 mi. southwest of a recent Mississippian oil discovery by Texas Pacific and others.

Alaska—Union Oil Co. of California and Ohio Oil Co. No. 1 Kenai Unit has set a new drilling depth record for Alaska. At last report, the test was drilling below 14,540 ft. after breaking the old mark of 14,374 ft. set earlier this year by Humble Oil & Refining Co. at its No. 1 Bear Creek Unit. Coastal Drilling Co., of Bakersfield, Calif., is drilling No. 1 Kenai Unit.

Also in the new state, General Petroleum Corp. No. 1 Great Basins was abandoned last week at 11,080 ft. The company will drill No. 2 Great Basins, about 14 mi. northwest.

Oklahoma—Sunray Mid-Continent Oil Co. et al No. 1 A. O. Baker, section 36-14n-13w, Blaine County,



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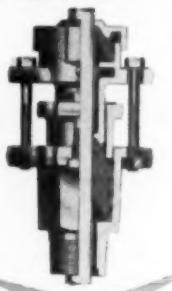
The use of 2½" tubing for casing and 1¼" or 1½" tubing as the oil string has made it necessary to develop new equipment specifically for this purpose. In response to the requests of production men, Hercules now provides tested and proven production equipment for Slim Hole Drilling. The well-known Hercules "Tee-Type" Duplex Stuffing Box and the new 2½" Hercules Type "HF" Tubing Head are incorporated in this typical Slim Hole well hook-up. Hercules "Tee-Type" Duplex Stuffing Box is now available in 1¼" and 1½" tubing sizes (plain or EUE) with the same packing and parts used in all Hercules Duplex Stuffing Boxes.

HERCULES "TEE TYPE" DUPLEX STUFFING BOX A combination Tee and Stuffing Box with female thread to screw directly onto the 1¼" or 1½" tubing, eliminating one-threaded connection and resulting in a considerably shorter hook-up. 3000 PSI test. Approximate height 15". Weight 33#. Price $31.00.

HERCULES TYPE "HF" SLIM HOLE TUBING HEAD Features the safety and quality that you receive in all Hercules tubing heads at a minimum price. Pressure cast, one piece steel body with 2" side outlets and heat-treated hinged slips. Over-head packed with neoprene packing. 1000 PSI test. Height 8½". Weight 19#. Price $49.50.



HERCULES "REGULAR TYPE" DUPLEX STUFFING BOX Proven design and dependability render this stuffing box unequalled for the difficult pumping situations as well as easy ones. Constructed from malleable iron, it protects workers from the danger of shattered metals should rods accidentally drop. The new 1¼" or 1½" "Regular Type" Stuffing Box is ideal for use in Slim Hole installations.

HERCULES TYPE "DS" PUMPING TEES In the 1¼" and 1½" sizes these Tees are ideal for use on Slim Hole well hook-ups.

HERCULES TYPE "HF" TUBING HEAD In spite of its economical price, the Type "HF" Tubing Head is pressure cast with one piece cast body and Overhead Packed with neoprene Packing Ring. This Head is now available for 2" or 2½" Tubing to suspend ¾" to 1½" Inner String (Plain or EUE) for Slim Hole operations.

All Hercules Products for Slim Hole Drilling may be purchased through the supply store of your choice. Write for complete information.

HERCULES TOOL COMPANY

Manufacturers of Oil Field Equipment

GENERAL OFFICES AND PLANT • TULSA, OKLAHOMA

Export Representative Oil Field Equipment Co., Inc. 90 West Street, New York, N. Y.

more than 20 mi. from any production, flowed at an estimated rate of 41-million cf/d of gas plus 65 bbl. of 53.3-gravity condensate per million through open hole at 10,864-806 ft. in the Cherokee. The discovery is 21 mi. southeast of North Custer City pool.

Southwest Texas—Ginther, Warren-Gulf-Halbouty et al No. 1 A. M. Bruni Estate, Webb County, flowed 46-gravity condensate at the rate of 5 bbl. per hour and gas at the rate of about 1-million cf/d through 11/64-in. choke and perforations at 7,036-46 ft. in the Wilcox. The discovery is the third Wilcox producer on the Pescadito Dome and is 4 mi. south of previous dome production.

Wyoming—Husky Oil Co. No. 1 T. E. Ranch, section 10-50n-104w, Park County, swabbed 155 b/d of oil, cut 15% water, on test of open hole at 3,658-931 ft. The wildcat is 13 mi. southwest of Half Moon field.

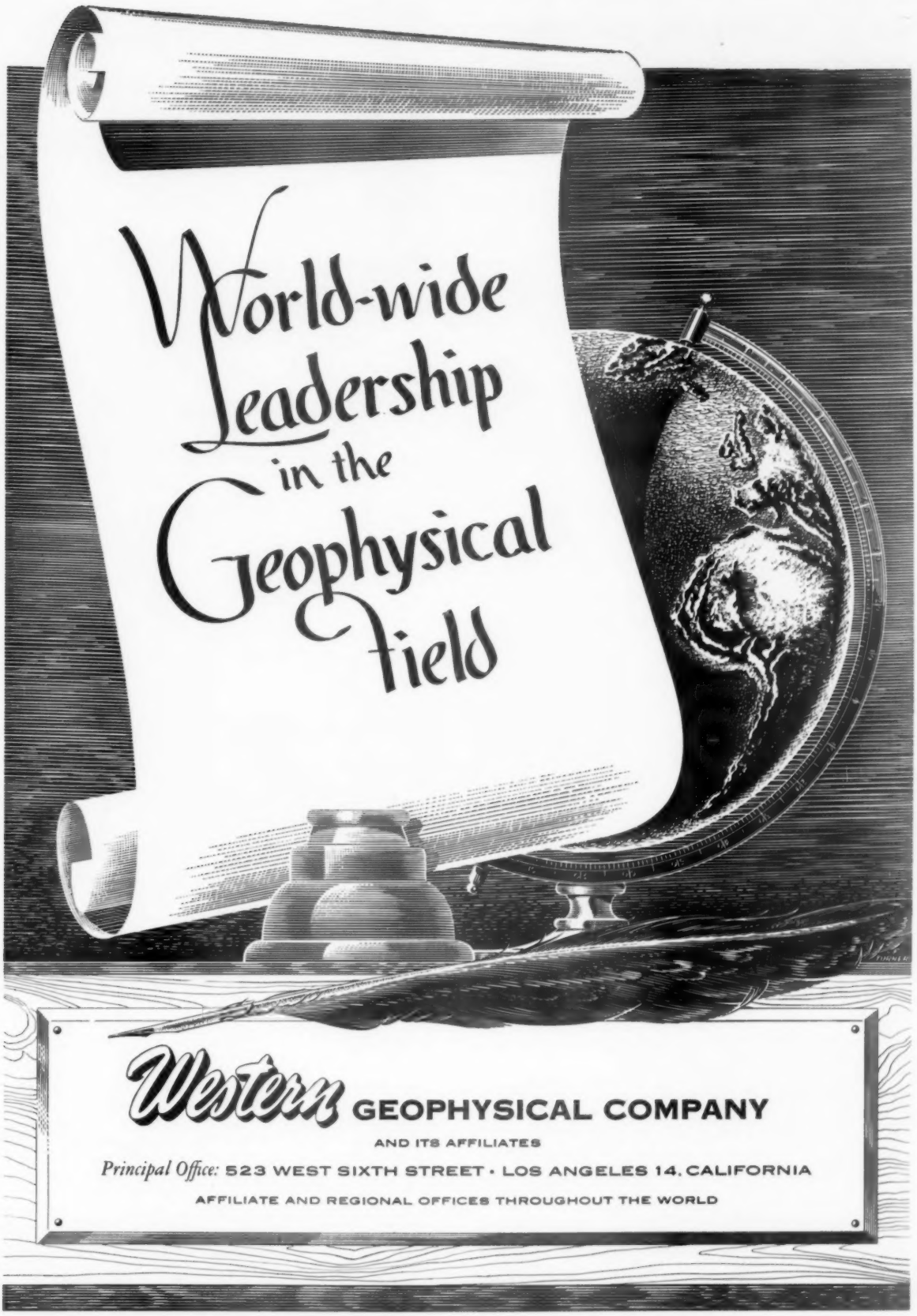
In Fremont County, Gulf Oil Corp. No. 1 Lysite-Federal, section 23-39n-91w, flowed gas at the rate of 6,012,000 cf/d on 1-hour drillstem test at 6,781-823 ft. Pipe recovery was 40 ft. of condensate and 158 ft. of gas- and water-cut mud. The prospect is 4 mi. northeast of West Lysite field.

East Texas—Globe Drilling Co. No. 1 Kenn Unit, J. G. Harding survey, Houston County, was completed for 56.5-million cf/d of gas plus 20 bbl. of 63-gravity condensate per million through perforations at 5,985-87 ft. in the Woodbine. The discovery is 2 mi. south of South Slocum field.

New Mexico—Tennessee Gas Transmission Co. No. 8 Glenn Callow, section 27-29n-13w, San Juan county, flowed 514 b/d of oil through perforations at 5,185-247 ft. in the Gallup and 3,010,000 cf/d of gas with 59 bbl. of condensate per million through perforations at 5,764-887 ft. in the Dakota. The discovery is 2 mi. south of Farmington.

Nebraska—Ohio Oil Co. No. 1 Cannon, section 33-2n-37w, Dundy County, recovered 15 ft. of oil and 45 ft. of oil-cut mud on 1-hour drillstem test of the Lansing-Kansas City at 4,178-90 ft. The wildcat is 4 mi. north of Rickard field.

Saskatchewan—Champlin Oil & Refining Co. No. 1-6 Champlin-Elmore, lsd1-6-2-32w1, 2¾ mi. southeast of Mississippian production in Carnduff field, recovered 60 bbl. of light-gravity oil in 16 hours on test of the Midale (Mississippian) at 4,006-16 ft.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AFFILIATE AND REGIONAL OFFICES THROUGHOUT THE WORLD

DUPLEX PUMP made by Worthington Corp. starts for Brazil.

Oil companies operating abroad are increasingly able to shop for their equipment—benefiting from the fierce competition between U.S. and foreign manufacturers. Purchases are starting to climb back toward prerecession heights.

The Trend in Overseas Equipment:

The curve of equipment-buying for overseas oil operations is starting to climb again, despite the easy supplies of oil throughout the world, as oil companies dig in for a solid position in the high-demand years ahead. A sampling of U.S. companies operating abroad, including two of the larger majors, shows a moderately rising trend:

Company	1958	1959	1960
A	$17,500,000	$18,000,000	$18-20,000,000
B	4,500,000	6,700,000	9,000,000
C	2,400,000	3,550,000	——
D	2,000,000	3,000,000	——
E	1,000,000	2,000,000	——
F	3,500,000	1,800,000	2,000,000
G	200,000	500,000	500,000
H	300,000	225,000	250,000

(The figures in the table, reported to PETROLEUM WEEK, are for all operations outside the U.S. except those in Canada, which many firms classify as domestic).

Oil companies surveyed by McGraw-Hill this summer plan to invest $1,186,000,000 in new plants, equipment, and property overseas this year—and to increase such capital spending to $1,246,000,000 next year. The totals, reflecting plans as of July, 1959, cover roughly three-fourths of the industry's capital expenditures abroad. The McGraw-Hill survey shows that U.S. oil management is making a large percentage increase in European expenditures—but will continue to allot the greater part of total overseas outlays, some three-fifths, to the Western Hemisphere. (The McGraw-Hill survey includes spending in Canada.)

The world-wide surplus oil conditions do not appear to

DRILLING EQUIPMENT of Tennessee Gas & Oil Co. loads at Houston for sea voyage to Argentina.

More Sales — and More Sellers

be retarding overseas spending so much as might be expected—mainly because companies without large foreign holdings are trying to catch up with their more successful competitors, and the latter do not feel they can afford to stand still. A leading exception is spending in Venezuela, held back by tax and market restrictions.

The decline in recent years of the relative importance of equipment exports from the U.S. is continuing, although dollar volume so far is holding its own. The loss of export business has been greatest in sales of refinery equipment, tubular goods, drilling machinery, and other types of oil field equipment. Many equipment and supply men are glum about the outlook.

Says the export division manager of a large supply house, "Our exports of oil-country tubular goods this year are off 25% from 1958 and 50% from 1957."

Adds his counterpart in a smaller equipment firm, "We

continued ▸

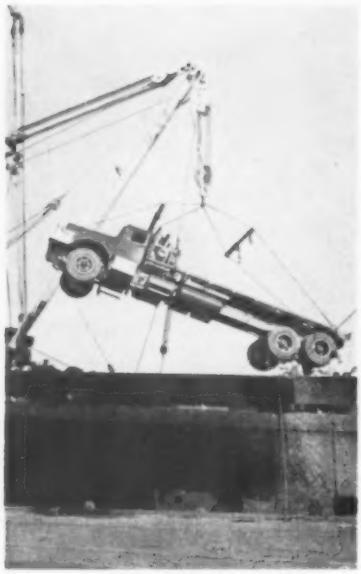
40 Industry Men Talking

This report is based on Petroleum Week interviews with 40 oil and equipment men whose work covers most phases of the industry's overseas operations. Represented are operating and purchasing men with major and independent oil companies, equipment and supply company executives, and drilling contractors with heavy experience abroad.

Cover Photograph

The front-cover picture of this issue shows a shipment of National Supply Co. equipment being loaded at Houston docks recently for delivery to Argentina.

LIBYA-BOUND is recent shipment of drilling equipment from Houston. Included are National 55 rig, three PD 38 Superior engines, C-350 pumps, and Lee C. Moore mast.



DIESEL truck, a Cummins-powered Autocar, arrives in Argentina for Loffland Bros.

have lost 80% of our tubular goods exports in the past two years and see no way to get them back. We are gradually being eliminated from the export steel market."

Still more evidence of the shift away from U.S. exports is in the 1958 payments for materials and freight by Arabian American Oil Co. Spending in the U.S. and Canada dropped from 42% of the total in 1957, to 37% last year.

	1958 Payments	1957 Payments
Europe, Middle East, Far East, and misc.	$41,677,000	$38,126,000
Percent of worldwide	63%	58%
U.S. and Canada	24,038,000	28,007,000
Percent of worldwide	37%	42%
TOTAL	65,715,000	66,133,000

The export of power-driven rotary rigs in 1958 was less than half the 1957 total, and well below the average for recent years (table, below).

All is not black for U.S. equipment men, however. Some important firms report export sales gains both last year and this. Helping keep sales up is the fact that some majors and large independents are still buying almost all their foreign needs in the U.S.

"Volumewise," says Shaw Cranfield, purchasing agent for Texas Gulf Producing Co., "the amount of domestic equipment we will buy will increase, but the percentage will decrease. For instance, if we buy 100 units of equipment this year, 80 might be domestic. Next year we might

continued ▸

Exports and Total Deliveries of Power-Driven Rotary Rigs

Horsepower	1949 Exp.	1949 Tot.	1950 Exp.	1950 Tot.	1951 Exp.	1951 Tot.	1952* Exp.	1952* Tot.	1953 Exp.	1953 Tot.	1954 Exp.	1954 Tot.	1955 Exp.	1955 Tot.	1956 Exp.	1956 Tot.	1957 Exp.	1957 Tot.	1958 Exp.	1958 Tot.
100 to 159	37	111	37	219	21	275	32	345	4	23	4	35	26	81	10	47	13	29	6	8
160 to 249	5	44	11	91	19	114	12	93	13	79	8	45	21	88	9	43	5	31	9	18
250 to 399	16	77	7	67	9	99	14	111	14	72	11	59	19	107	15	64	23	50	5	15
400 to 629	8	55	11	108	21	162	7	118	16	74	20	76	11	63	35	91	41	73	19	28
630 to 999	5	21	3	53	8	66	7	81	5	46	11	41	22	47	21	43	32	45	2	11
1000 to 1599	11	33	0	18	6	32	17	43	7	50	5	40	8	58	14	52	29	48	21	36
1600 to 2499	0	5	0	1	0	0	0	4	1	2	0	5	0	10	3	12	0	16	4	9
Total, All Rigs	**82**	**346**	**69**	**557**	**84**	**748**	**89**	**795**	**60**	**346**	**59**	**301**	**107**	**454**	**107**	**352**	**143**	**292**	**66**	**125**

*Totals through 1952 include shot hole and water-well rigs.

When oil rigs probe the ocean floor ...why are Gardner-Denver pumps on board?

Long life

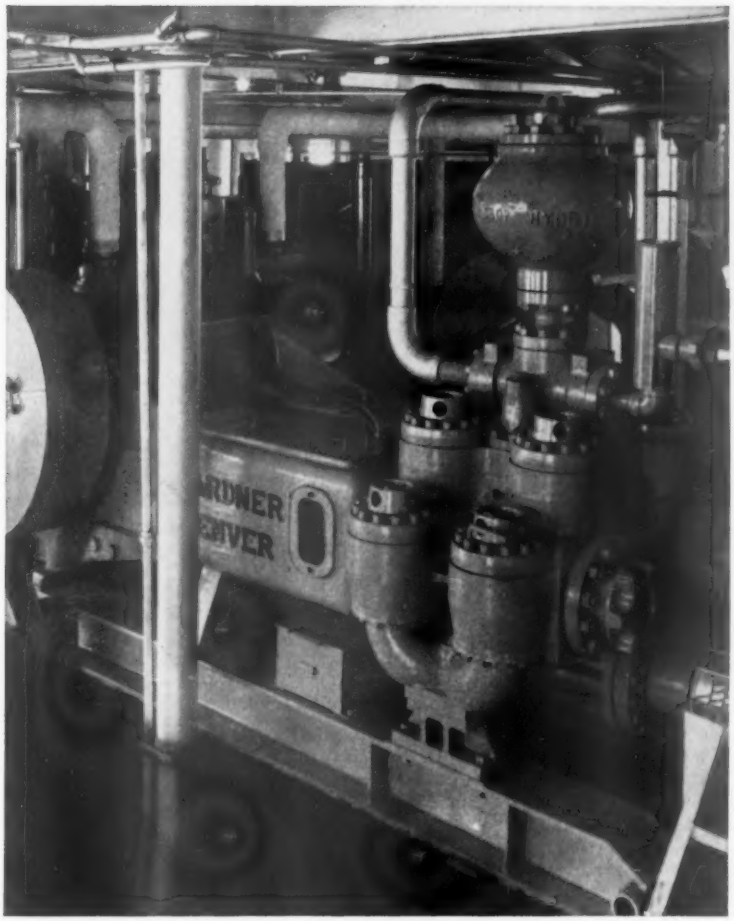
Efficient operation

Dependable design

Reserve strength

Simple maintenance

Follow-up service



No one needs to worry about sudden pump failure when Gardner-Denver GX pumps handle the drilling mud. That's why most of the big offshore rigs carry Gardner-Denver pumps.

They're built to take the high pressures and shock loads of deep well drilling. Rigid frames. Eccentric construction with large-area, pressure-lubricated bronze bearings.

Consult with the Gardner-Denver man about your mud pump needs for today and tomorrow.

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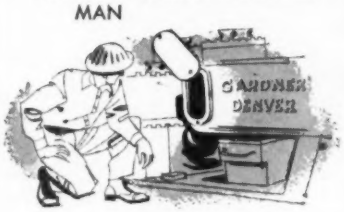

Your Gardner-Denver oil field specialist is trained to assist in solving your fluid circulation problems . . . to help keep your mud pump in tiptop shape. At Gardner-Denver *there's no substitute for men*—our 100-year philosophy of growth.

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PROPANE TANKS fabricated by Chicago Bridge & Iron Co. splash into Florida waters before starting ocean trip to Cuba. Lashed together in groups of four, twenty of the 30,000-gal. pressure tanks were towed across open sea for service at Nicaro.

buy 200 units, but only 150 of them would be domestic."

But the long-term outlook is for steady inroads into the export market share of U.S. firms by foreign manufacturers—especially the European. Main reason: Foreign prices are lower.

A major company purchasing agent puts it this way: "Foreign competition is a threat to American manufacturers because of high prices in this country. About the only time we'll buy pipe domestically is when the time element is important. If we have $1-million worth of pipe to buy, and it costs $1¼-million in the States, then we'll wait a couple of months and buy it foreign."

Agreeing with this is the purchasing official with another oil company who says, "We haven't been affected by competition between the domestic and foreign manufacturers because we haven't found oil yet in our present program. But if we do, we'll probably buy all foreign pipe. I was recently quoted some prices. Delivered, the foreign pipe was 10% under what I would have to pay for pipe at the mill in the U.S. If you include transportation charges, the foreign pipe was 30% to 35% cheaper than domestic pipe."

Observes the purchasing chief of a large independent, "We will most certainly buy oil field tubular goods from the Germans, the French, or the Japanese some day. The high cost of American manufactured equipment just about prices it out of the market on some items."

Adds an executive with a major that until now has always bought 100% of its foreign equipment needs in the U.S., "We are taking a look at what can be had overseas. Our engineers and crews prefer U.S. equipment; they're used to it. But if the price of steel goes up again, and the foreign competition keeps prices low, we certainly will consider foreign purchases for 1960."

The manufacturers abroad are steadily building up capacity and improving delivery times. European firms, for example, expect within a few years to be able to supply 95% of Europe's refinery equipment needs, plus 85% of its drilling equipment needs. This prediction is from the Paris headquarters of the Federation of European Petroleum Equipment Manufacturers, which now has more than 1,500 member companies from various European nations.

"The competition of foreign suppliers," says one of the large buyers of U.S. oil equipment for export, "has increased significantly with respect to quality, availability, speed of delivery, and after-sales service. As a result, we expect that the volume of shipments from the U.S. will decrease, and that more shipments from the U.S. will be of the selective specialized types of oil field equipment."

U.S. equipment and supply firms are having increasing difficulty meeting the government-protected credit terms of foreign manufacturers.

"More and more suppliers," says Fred L. Goldsby, vice-president, Chicago Bridge & Iron Co., "are being asked to sell their products on deferred terms. This is particularly true of the non-private-enterprise oil industries that are expanding faster than their economies can justify on a cash basis. Government or insurance guarantees obtainable abroad, and not in the U.S., give an added credit advantage to foreign suppliers."

There is a bitter note in the voice of the U.S. supply-house official who says, "It's tough when foreign governments guarantee the risks of our competitors up to 85% for up to five years. You can take a long credit risk with a deal like that. There is a lot of help our government could give us that it isn't giving us."

Despite such disadvantages, the U.S. equipment firms still retain an edge, with over-all superiority in equipment quality, service, and speed of delivery.

continued ▸

National T-12 Truck Mounted Rig-Up in our Houston Plant yard. Torrance, Cal., is the other port center location where National Supply performs rig-ups for customers all over the world.

This National T-45 Rig-Up will insure a faster start for the customer at the well site. Everything is positioned exactly as it will be used overseas.

On larger rig-ups like this National 110, National often furnishes on request guide photographs of machinery connections and paint-coded parts for reassembly. Equipment boxed for shipment is specially wrapped, sealed and weatherproofed.

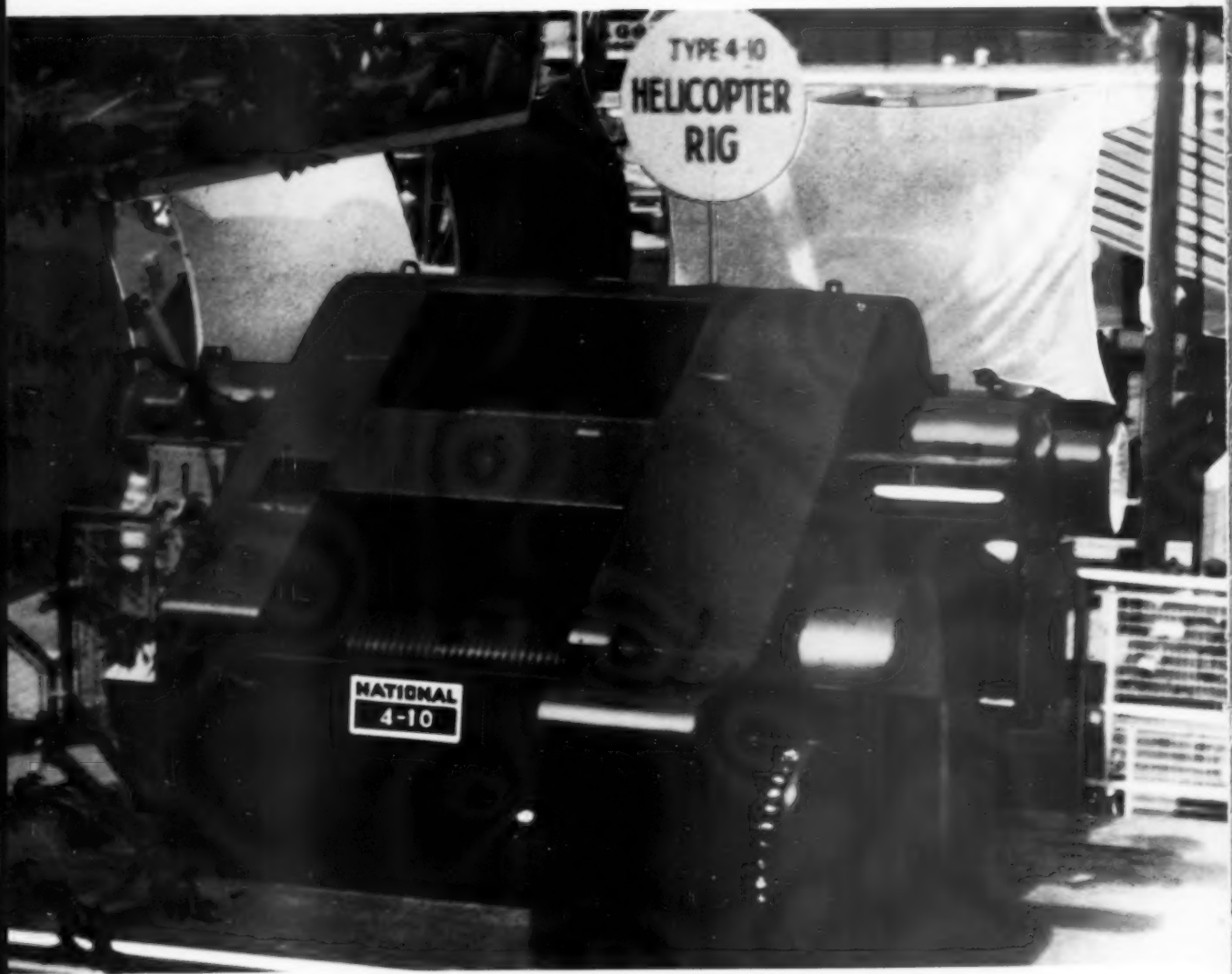
Here's a National 110 Rig that's ready to go! Test operation, lubrication and adjustment of all components, standard procedure in National Supply's complete rig-up service, have all been done.

No rig-up job is too large or small

for NATIONAL SUPPLY...

and it saves you time and money at the site!

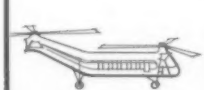
You can use this NATIONAL Rig where no rig



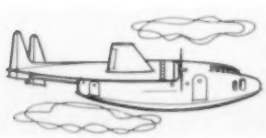
Type 4-10 Helicopter Rig

Disassembles into components weighing less than 4,000 pounds

Drills wells to 10,000-foot depth



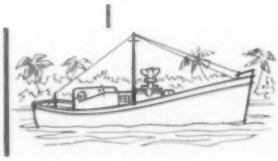
Can be transported by helicopter



or cargo plane

or track-type vehicle

or light truck



or boat and barges

has gone before and drill to 10,000 feet!

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- Maximum portability makes remote areas accessible
- Easy assembly, with positive alignment and high strength
- "Midship" transmission eliminates long chain drives
- Can be converted to a conventional rig
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- Streamlined panel control promotes easier, safer, more precise operation
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- Rotary drive sprocket permits wide selection of rotary drive ratios
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- Main brakes are smooth acting . . . eliminate brake handle "kick-back"
- Torque converter equipment results in faster round trips, better pump performance, improved rotary operation

Be sure you get this new Bulletin

explaining the new Type 4-10 Helicopter Rig, and the new concept of portability that it brings to the industry. A big fold-out page in the bulletin shows you exactly how the rig disassembles for transportation. Ask any National representative for your copy.

More on the next page . . .

This Type 130 Rig, second largest in the National line, is in service on a drilling barge off Louisiana. National Rigs were used in pioneering offshore drilling operations, and have since served or are serving in offshore drilling operations all over the globe.

Why is the NATIONAL Rig first choice?

We manufacture rigs for all drilling needs—for 1,000 to 25,000-ft. wells. We also offer the industry's finest rig-up service, and maintain a worldwide supply service network that is very helpful to operators wherever they may be.

But a broad line, valuable experience, expert rig-up service and fast on-the-spot service are not the basic reasons why National Rigs are most preferred. The main reason is this: There are no compromises in the design or materials of National Rigs. In fact, each one has some extra built-in stamina that many National Rig users call the "Drillers' Margin" that makes an important performance difference on every well.

However they express it, operators the world over know this—and they like to tackle the big, difficult jobs with National Rigs. That's why *eight successive world's depth record wells*, from 16,655 feet to 25,340 feet, have been drilled with National Rigs. That's why almost half of all wells over 15,000 feet are drilled with National Rigs.

You judge National Rigs by what they actually do for you. And that's why they're first choice.

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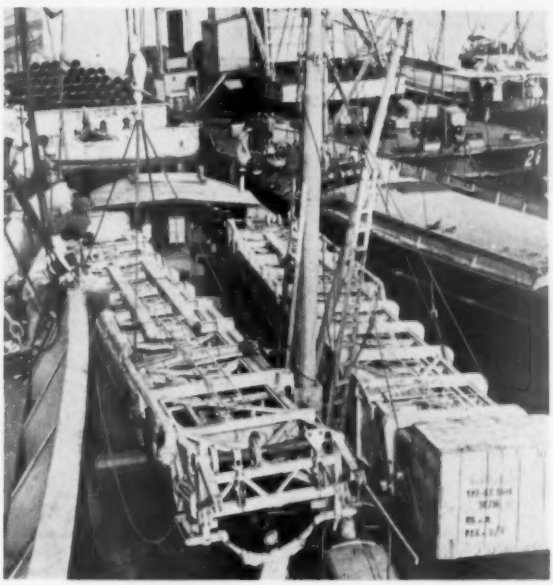
Litho in U. S. A.

BRAZILIAN PLANT to make drilling equipment, owned 50% by Lucey Export Corp., typifies new U.S. investments overseas.



ITALIAN-BUILT Ideco rigs reach Argentina, showing spread of foreign manufacturing based on American knowhow.

"Our main reason for not purchasing foreign equipment right now," reports an independent operating in South America, "is length of delivery time. We've found we can get delivery much quicker from the U.S. than from Europe."

Observes a Tidewater Oil Co. official, "Foreign suppliers have lower prices, but it is necessary to provide inspection service to assure meeting our standards. Adjustment of claims is very difficult, due to customs problems and lack of company representation at supply points. However, we are increasing our foreign purchases as these problems are being solved."

A major with limited foreign activity complains of the instability of foreign equipment prices that "change from week to week."

In their counterattack against foreign competition, U.S. manufacturers continue to use licensing of foreign manufacturers as an important weapon, although the industrywide trend toward licensing has slowed somewhat in the past year.

In some lines, however, licensing is still active. "At times, you'd think that's all the U.S. firms are doing," says C. B. Carter, export division sales manager for National Supply Co., largest seller of overseas oil equipment. "We are doing more licensing of our own, with three or four agreements on extreme line casing, for example. In our line, the trend is increasing rapidly."

Adds Chicago Bridge & Iron's Goldsby, "Many new license agreements in our field—chiefly the supply of oil storage equipment, refinery vessels, and special steel plate structures—have been made in the past year. The only significant change in the trend seems to be that two or more agreements are being established by each company in the same area to provide the ultimate customers with the competition they are used to in this country. We are continually expanding our service to our overseas clients by closer personal contact with licensees." Depending on individual circumstances, licensing may not be enough.

The feeling is strong among many U.S. equipment men that a solid position overseas can only be had through direct investment in manufacturing and supply facilities abroad. "We have gone into manufacturing in France," says National Supply's Carter, "and have delivered two rigs in a short time. And we are expanding other lines of equipment in our French supply operation. National pride is a factor, Frenchmen would rather buy something made in France. Our British plant manufacturing oil field equipment is operating at capacity, with a substantial backlog."

Among the firms currently expanding foreign manufacturing is Byron Jackson Tools, Inc., which has a newly completed plant in the Netherlands for manufacture of rotary tongs and other oil tools. This is in addition to Byron Jackson's Mexican plant that has been making rotary tongs. The company is considering expanding the types and quantities of oil tools made in these plants.

The value of such a system is summed up by a spokesman for another equipment firm this way: "If you keep an investment in manufacturing facilities, you can earn an income and grow with the economy."

To match competition, U.S. firms have extended greater-than-normal credit. Says a supply company executive, "As far as we're concerned, credit is the big problem. In Argentina, they don't even have the pesos, much less the dollars. They have to have credit. A company selling to them has to be able to wait five years. This can mean a big investment in accounts receivable, and it's rough when you have to carry that plus the sales cost."

Almost all the equipment firms operating abroad are being forced to extend more liberal credit than they think desirable.

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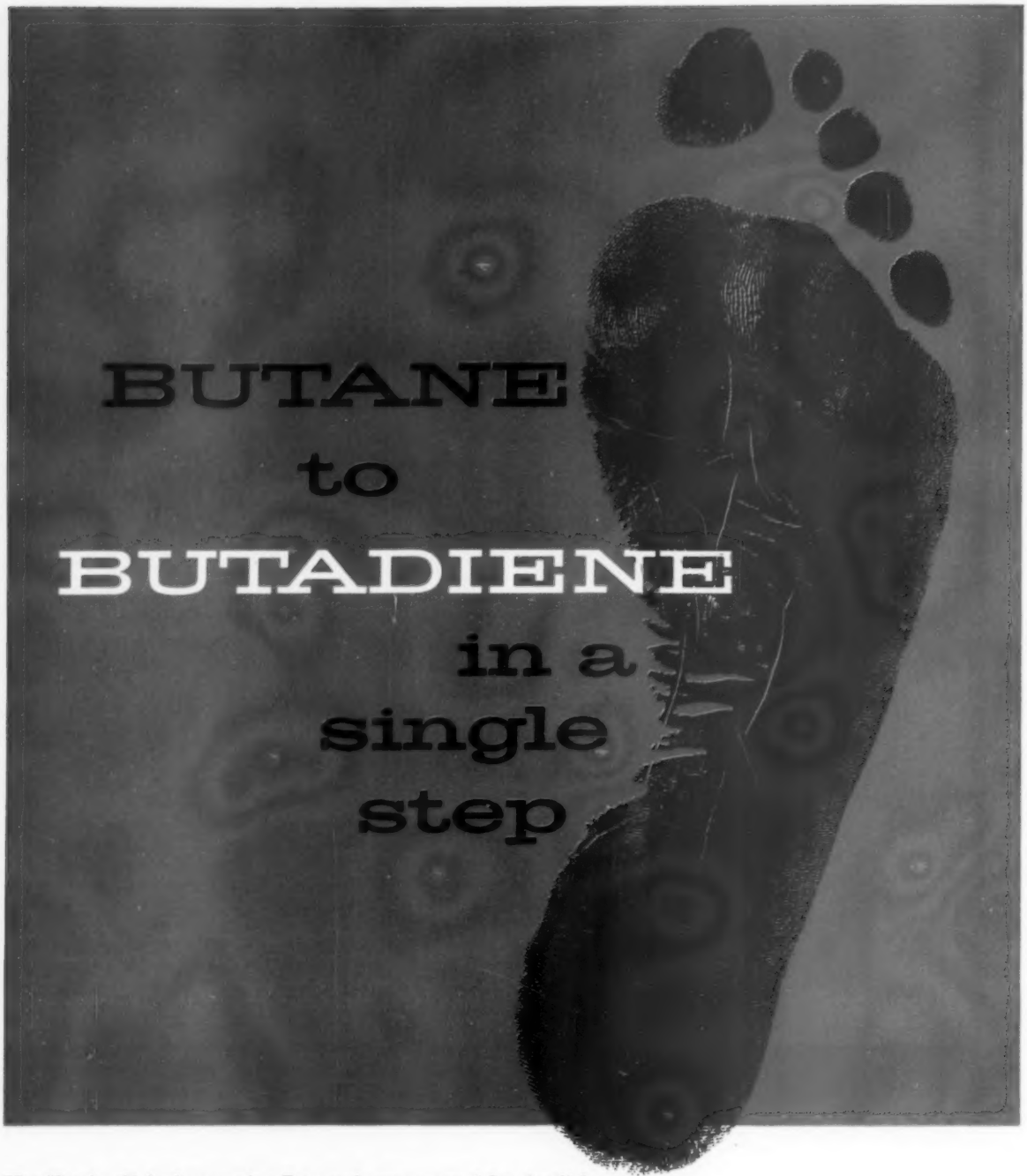

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- Butenes to Butadiene
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EIGHT-WHEEL-DRIVE Teracruzer, built by FWD Corp. and used by Standard-Vacuum in East Pakistan, is example of new methods of improving poor transportation overseas.

ON FOOT in Nigeria, Shell seismic crew shows how bad transport problem can be.

In addition, U.S. equipment men are increasing field service to win and keep customers. "Today," says John Evans, vice-president of Lucey Export Corp., "we have to become specialists to a greater extent than in the past, and to give the drilling contractors the service they are used to in the States. The big contractors seem to be willing to pay for specialized services, since it saves them the need to keep their own specialists there. We have expanded our service in the field and are going into drill collar inspections, servicing of Totco drift and directional recorders, and renting automatic drillers."

The big supply companies would like to expand through construction of supply stores overseas. But they're generally thwarted by lack of concentrated oil operations or by local government restrictions.

"We are looking into further expansion," says one supply firm executive, "and are surveying several areas to see if we should put in representatives and stocks. We have a man checking in Libya, where the oil companies have not yet started warehousing. If someone can put in a supply store, we'd like to be the first.

"But in some of these countries in North Africa and South America the legal restrictions can eat you up. In some cases you have to take in nationals as partners. You can find plenty of people willing to go into business with you if you put up the money.

"Then there's the matter of our paying duty as resellers. Oil companies aren't willing to pay an extra 25% to 30% to buy from a supply store when they can bring equipment in directly themselves duty-free."

Because the economics are against U.S.-type supply stores overseas (except for such high-activity areas as Venezuela), drilling contractors are being forced to go into the supply business for their own account.

Foreign soft-currency problems have lessened considerably in the past year, with convertibility to dollars much easier. But U.S. equipment companies haven't benefited much.

A supply-firm official explains, "We had thought it would help to be able to take payment in sterling for equipment made in the U.S. But with the oil companies having policies of 'buying locally,' the easier convertibility hasn't made much difference. Argentina and Brazil convert to dollars freely, but that doesn't do us any good because we can't get import licenses to bring equipment in."

An executive with another supply firm says, "Today it's price, not currency exchange, that determines purchases by the big international oil companies. The big users are still the outfits with the dollars."

Oil purchasing men are about equally divided on whether the prices they pay for equipment will rise in the near future.

"I don't see how prices can go up," says a leading independent producer. "American manufacturers can't expect to compete on the world market with higher prices. I believe they will have to hold the line on prices regardless of an increase in the price of steel."

Voicing the opposing view is the major company official who asserts, "Oil equipment will certainly go up this year in line with any steel price increases. This has always been the pattern."

There is the same split opinion among the equipment and supply men themselves. "Prices will stay about the same," says one. "U.S. manufacturers will absorb a lot of a steel-strike price hike, or certainly fight hard against further rises. Equipment is already priced too high to be competitive abroad."

"Equipment will always follow steel," says another. "If the costs of labor and materials go up, we can't stand to take it out of profits."

continued ▸

TEN COMPLETE RIGS, supplied by Mid-Continent Supply Co., are crated for shipment to Loffland Bros. Co. in Argentina.

Contractors Take on a Bigger Load

They are gaining both in numbers and in share of the drilling business overseas—and are learning to live with the added difficulties abroad.

More and more it is the drilling contractors who are responsible for equipping drilling operations abroad. Those surveyed are almost unanimous in saying that the number of contractors is gradually increasing overseas.

Says J. W. (Jack) Bates, Jr., president of Reading & Bates Offshore Drilling Co., "The movement of several new operators into the foreign area this year has changed the picture overseas. New concessions are being offered, and new companies are taking them. The new operators are bringing in new contractors to drill out their concessions. Also, the older companies overseas have become more firmly established and are turning drilling operations over to the contractor, as they concentrate more on production."

Chris Zeppa, vice-president of Delta Drilling Co., Tyler, Tex., estimates that "the number of drilling contractors overseas has increased at least threefold in the past two years, and it is continually increasing." Zeppa observes, "In addition to the American contractors, who heretofore have had the monopoly on foreign drilling business, many strong foreign contracting firms have entered the drilling business, especially in the European-Mediterranean area."

Other sample comments by contractors:

"The number of drilling contractors overseas is increasing in almost every area that work is increasing. This increase is due primarily to conditions in the U.S. The drilling slowdown here caused some people to go into foreign operations who might not have otherwise."

"There has been a slight increase in the past year. Generally there are more American drilling contractors looking for work."

"An increasing number of contractors are looking for activity anywhere in the world."

"Next year should be better for contractors. We have heard of a number of companies planning new foreign ventures within the next year."

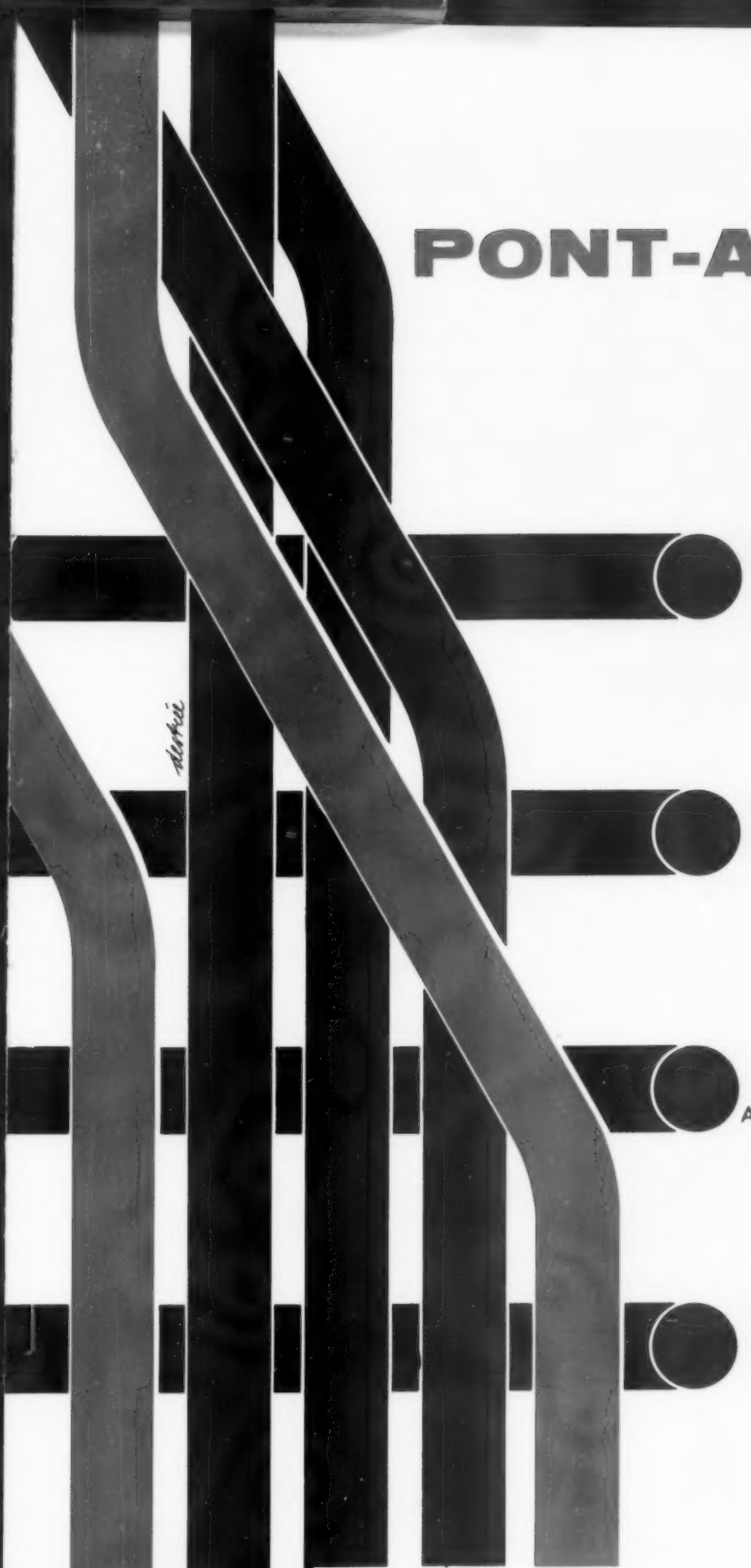
Despite the rise in contractors' activity, they are anxious for more, and competition for business is very keen. Only a few say there is enough business to go around. Delta Drilling's Zeppa says flatly, "There is not at present sufficient work overseas to keep well engaged all of the drilling contracting firms now entering the foreign business."

Adds a contractor with rigs in the Near East, "There are now several responsible contractors in our area of operation—most headed by Americans. Jobs are going very cheap in some of these spots. That sharp pencil is beginning to be absolutely necessary on foreign jobs—just as in the

continued ▸

"You couldn't have a boom in Venezuela big enough to keep all the rigs busy all the time. There never is enough contract drilling business to go around."

JOHN RUNDLE
Loffland Bros. Foreign Companies



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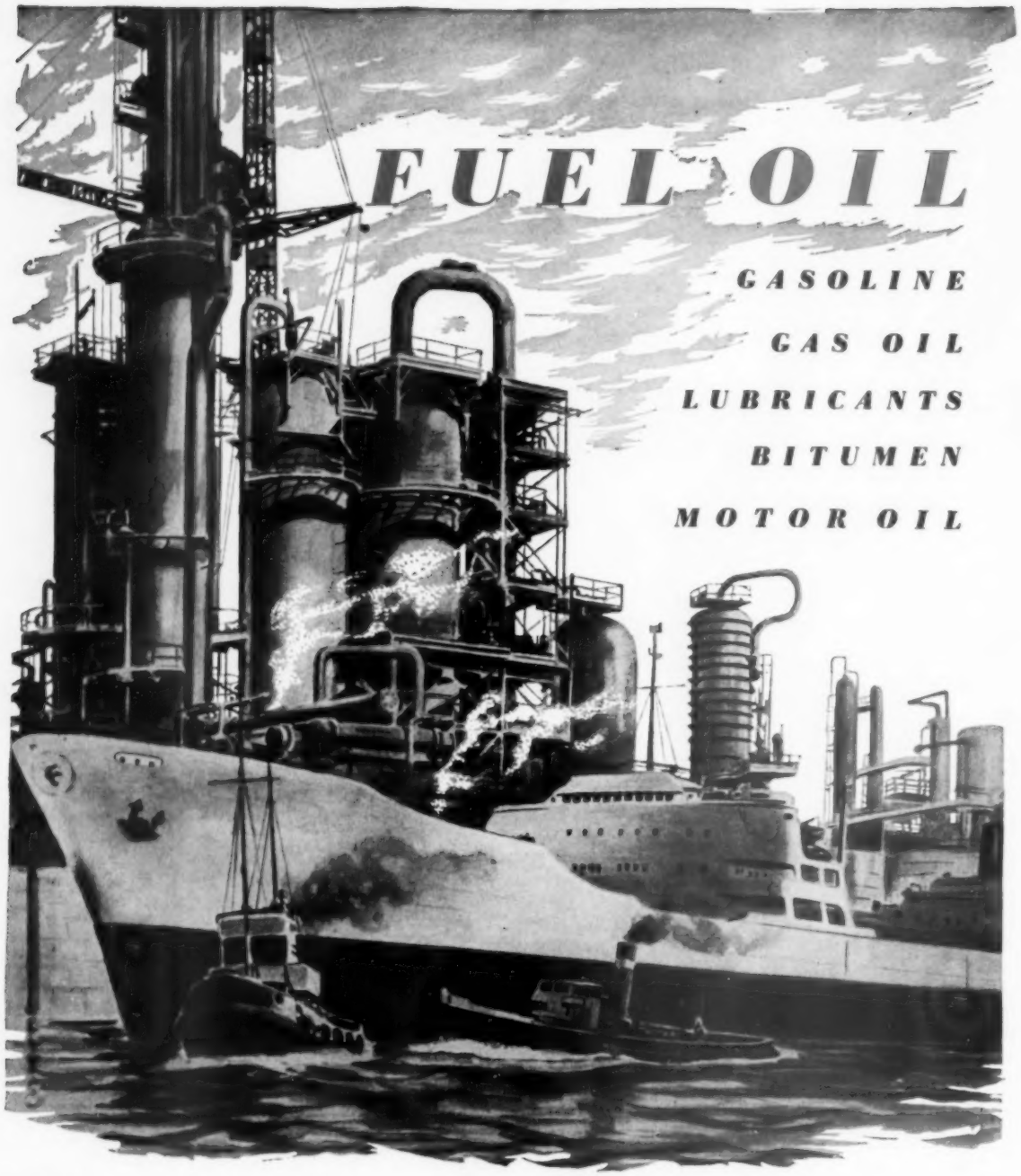

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"Some contractors are going so far as to offer complete package deals that include all exploratory work, as well as drilling."

JACK BATES
Reading & Bates Offshore Drilling Co.

U.S. In one country, where there have been good discoveries, we have bid on four jobs where we were willing to put in new tools. We lost all four jobs to foreign competition."

The worldwide crude surplus continues to have a depressing effect on drilling activity generally. But individual contractors are optimistic. Several, for example, say that the recent large North African additions to reserves have actually helped business.

"Right now," says Jack Bates, "the crude supply situation is holding the lid on additional drilling throughout the world. Most drilling is being done to prove reserves or hold concessions. Little development work is being done. But, if the market existed, several areas would open up."

Among those who say their companies aren't being hurt by recent good finds is John Rundle, president of Loffland Bros. Foreign Companies. "The successes in Libya have naturally helped us somewhat," he says. "We sent additional drilling equipment as a result of the recent Esso discoveries. And things should continue to improve. New operators have taken concessions that will necessarily bring increased outlays for drilling after initial exploratory work is completed."

Confirming this view is the large contracting firm that reports a steady increase in its foreign drilling activity. The company says it is planning to move in some more rigs and that the demand for rigs by other contractors seems to be picking up.

From an area standpoint, the big foreign play is in Libya, where some 17 rigs have been running this summer. Says a veteran contractor, "you'd have to say that drilling activity in many parts of North Africa, Europe, and the Middle East is fairly good at present."

South America presents a confused picture, with gloom in Venezuela the predominant note. "The contract drilling situation is discouraging in eastern Venezuela," says T. N. Law, Jr., director of industrial relations for D & D Drilling & Construction Co. (Venezuelan subsidiary of Falcon Seaboard Drilling Co., Tulsa). "It is not basically a matter of contractor competition. The tax situation and the oversupply of crude have reduced the operators' incentives to develop and explore."

Loffland's Rundle sees no early pickup in Venezuela, due to depressed market conditions. But, he adds: "You couldn't have a boom in Venezuela big enough to keep all the rigs busy all the time. There never is enough contract drilling business to go around."

Argentina and Bolivia are among the bright spots. Huge shipments of oil field equipment have been made this year as the Argentine government drives for self-sufficiency in oil. In Bolivia, contract drilling has not yet reached its peak, and should improve as operators follow up their current exploratory activity with drilling programs. At present there are more than 20 seismic, gravity, and geological crews exploring some 30-million acreas of concessions, mostly in the sub-Andean areas.

Not only is the number of contractors growing overseas, but their percentage of the drilling business is also increasing. This is the consensus of the contractors surveyed, based on impressions, rather than on firm statistics. Typical comment: "We feel that the percentage of overseas drilling work done by contractors is increasing—but slowly. We have no way of knowing what the percentage is. Rig counts don't help, because we don't know if the rigs are active or inactive, or if they are company- or contractor-owned."

"A lot of companies," observes the vice-president of a large contractor, "will buy one good rig when they get a concession and drill themselves until they hit oil. But once they strike oil, they usually call on the contractor to drill the development wells. There are several reasons. First, they want to get the burden of the drilling labor off their hands. Second, they can cut the labor payroll. And third, if they have trouble with the government of some country, the official blame can be placed on the contractor. Thus, the contractor can be replaced, and the operator can stay in the country."

Sums up an overseas veteran, "The percentage of foreign work done by drilling contractors will continue to increase in proportion to their ability to take on heavy expenditures for equipment and services."

Under most of today's overseas contracts, the drilling contractor is furnishing a complete drilling rig, with related tools, spare parts, and supplies, and a complete crew of men. Here is how some of the leading contractors review typical arrangements:

Keith Diehl, vice-president of Drilling & Exploration Co. of Delaware, Dallas: "Unlike the majority of U.S. contracts, which are straight footage, most of those overseas are modified day-rate contracts, with an incentive bonus for footage drilled. There are many variations. Probably the most common at present is one that has the contractor furnishing the drilling equipment, the camp (both for expatriate and local workers), and a limited amount of transportation equipment, such as trucks and personnel carriers. The operator furnishes the mud and casing—in fact all tubular goods with the exception of the drill pipe—as well as other items the operator normally supplies in the U.S. The contractor provides all personnel pertinent to the operation, maintenance, and servicing equipment."

John Rundle, Loffland Bros.: "The typical arrangement is for the contractor to furnish rig, some transportation equipment, personnel, and in some instances camp facil-

continued ▸

"The local labor supply overseas is generally adequate but untrained—but we have found everywhere that the local working people are susceptible to training."

KEITH DIEHL
Drilling & Exploration Co. of Delaware

"Foreign transportation delays don't hurt when proper consideration is given to planning. It's best to have your own radio communications."

LEE DANIEL
Helmerich & Payne

ities. Services, such as logging and perforating, usually are handled by the service companies, where available. Otherwise these are furnished either by the contractor or the operator. In heavily concentrated drilling areas, such as Venezuela, operations are carried out exactly as in the U.S."

Jack Bates, Reading & Bates: "Contractors today are offering more services so that the operator can concentrate on exploration and production. The usual arrangement is a term contract of two years' duration. Most contracts now call for the contractor to furnish all equipment, personnel, maintenance, supplies, and transportation, and all third-party functions, such as cementing, logging, and perforating. The operator furnishes the place to drill and the tubular goods. The contractor takes care of procurement in most cases, including mud, pipe, bits, and sometimes casing. Some contractors are going so far as to offer complete package deals, which include all exploratory work as well as drilling—everything except land acquisition."

Tyler Woodward, president of Camay Drilling Co., Los Angeles: "The contractor supplies the drilling tools, the drilling personnel, the supply personnel, the camp, everything that goes with the camp, and in minor cases the trucking. The operator supplies the money, the concession, the government relations, geology, and engineering."

T. N. Law, Jr., D & D Drilling & Construction Co.: "In Venezuela, contract arrangements are about the same as in the U.S. Day rates usually apply in wildcat country, with footage incentive rates becoming effective after costs are generally established. Some contracts call for footage rates to certain depths, with day-work rates to follow. In Bolivia, under a labor contract, we merely furnish the supervision and the drilling crews."

The contractors are having their troubles with local manpower, but are finding that proper training can produce good crews of nationals. Most of them say it's not true that it requires two nationals to do the work of one American. Generally, much less subcontracting is done overseas than in the U.S., and thus more hands are required as permanent members of the crew.

"The local labor supply overseas," says Diehl, "is generally adequate but untrained—but we have found everywhere that the local working people are susceptible to training."

Some of the biggest companies are assigning one extra American derrickman as a trainer, to instruct the men on the floor and to work along with the crew when needed.

"Plenty and poor," is the way one contractor describes the manpower in some Mediterranean areas. "It's a seven- to ten-man crew when we're using nationals," he says, "with two or three Americans or Europeans, and the rest nationals, plus extra laborers to do work around the camp. Why so many men? The nationals are not so strong or active. Most of them don't wear shoes. You train seven to get one or two good men. But we get them. In Egypt we were quite successful. Some of the men turned out very well."

In foreign areas long under development, drilling operations are carried out largely by nationals. Some departments of the larger contractors, such as transportation and office work, are composed entirely of nationals.

Concludes a prominent contractor, "It's surprising how fast nationals pick up this work, and what good employees they make. There are three places we work where the national crews could come to the U.S. and compete with the best we have."

Transportation delays are still a problem, but one that is shrinking. "It's a question of experience," says one contractor. "As you go along, you learn how to handle it."

Example: Reading & Bates overcame the common bottleneck of inadequate unloading facilities earlier this year by improvisation at Kuwait. More than 40 ships were waiting to be unloaded, meaning that the last vessel could not land its cargo for a month. The company borrowed some barges, and through the use of four company-owned work and crew boats unloaded the equipment on a nearby beach.

"Foreign transportation delays don't hurt," says Lee Daniel, vice-president of Helmerich & Payne, Tulsa, "when proper consideration is given to planning." The planning factor is stressed by all the overseas contractors. One of the large firms operates on the principle that there will always be supply problems not encountered in the U.S., so the company has staffed its foreign operation with experts in the supply field.

Communications have improved greatly in recent years, with two-way radio a vital factor. There are still irritating delays—in mail from some countries, for example. Says Law, "Mail delivery is so poor in South America that we now use second mailings—following up the original with a carbon copy a day or so later, both to and from."

One company that uses cables and overseas telephones frequently has cut down on use of the latter. The company finds it is taking from an hour to three days to get through to the U.S. from some of the less-developed countries, because lines are overloaded.

Extensive two-way radio systems in Venezuela have brought dramatic improvements in communications between contractors' offices and camps.

Diehl sums it up this way: "The farther you get from the U.S., the more unreliable communications become. Way out, air mail and cables are sometimes not delivered at all. But generally, communications are improving and developing very rapidly."

continued ▸

"Mail delivery is so poor in South America that we now use second mailings — following up the original with a carbon copy a day or so later, both to and from."

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The Cooper-Bessemer Corporation, explains...

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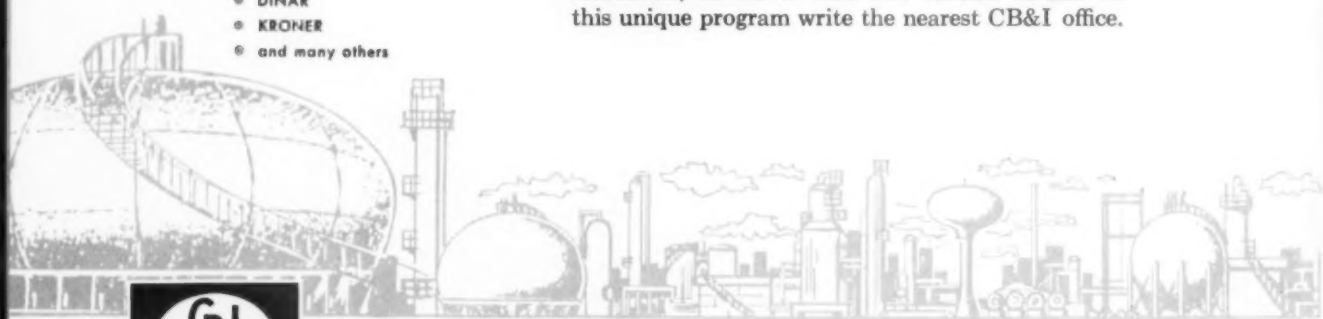

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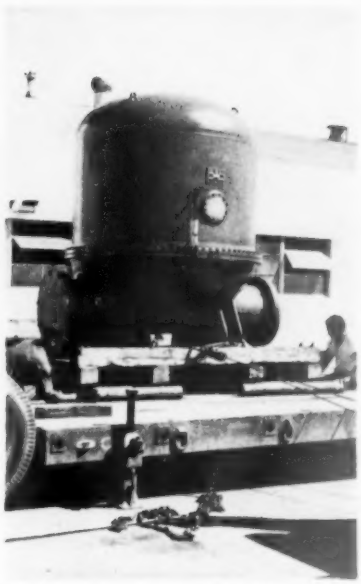
4,000 ITEMS, including 268 trucks, boxes, and crates, sent to Libya, by Western Geophysical Co. for one field party, underscore problems faced by purchasing men in U.S.



OIL METER exported by Ralph N. Brodie Co. exemplifies U.S. "specialty" products.

Purchasing Men Push Costs Lower

Better packaging of overseas equipment is being stressed–along with price-shopping and pressure on field men to plan needs in advance.

The post-recession drive to cut expenses still has considerable momentum in the offices of oil-company purchasing agents. Price comparisons and streamlining of procedures are getting close attention.

"We are doing more shopping to trim costs," says Shaw Cranfield, purchasing agent for Texas Gulf Producing Co. "Also, we are trying to find the nearest source of supply to our location. We are contacting the various steamship firms for the best service and rates. And the question of who has the best rates, other factors being equal, is deciding whether the manufacturer or the local export trading company handles our crating."

Today, comparing foreign equipment prices with domestic is standard practice, whereas only a few years ago the business went almost automatically to U.S. firms.

A streamlining of office methods has been completed this year by two of the oil companies that made heavy U.S. purchases of oil equipment for export.

Several purchasing agents single out packaging as the operation ripest for cost-cutting. Says Sinclair's director of purchases, T. C. Banta, "Improvements in the way you prepare overseas equipment—eliminating expensive crating to the fullest extent—can give excellent savings."

A Midwest major with operations in South America is consolidating material from various U.S. suppliers in one shipment whenever possible in order to get favorable freight rates.

Shipments are almost always large enough to qualify for the 100-lb. rate.

The use of outside packaging firms is growing. Tidewater Oil Co., for example, uses such firms for all its packing. And the purchasing agent for a large operator in Argentina says, "We are watching our crating expenses fairly closely. If the manufacturer's charge for crating exceeds 3% of the total cost, then we have a crating firm handle the job instead of the manufacturer."

Freight forwarders continue to be popular with the oil companies—mainly with those whose equipment purchases for export are not large enough to justify a company traffic department. Sample opinions of industry purchasing agents:

"We don't do our own overseas shipping; we work with freight forwarders, because they perform so many

continued ▸

"Improvements in the way you prepare overseas equipment — eliminating expensive crating to the fullest extent—can give excellent savings."

T. C. BANTA
Sinclair Refining Co.

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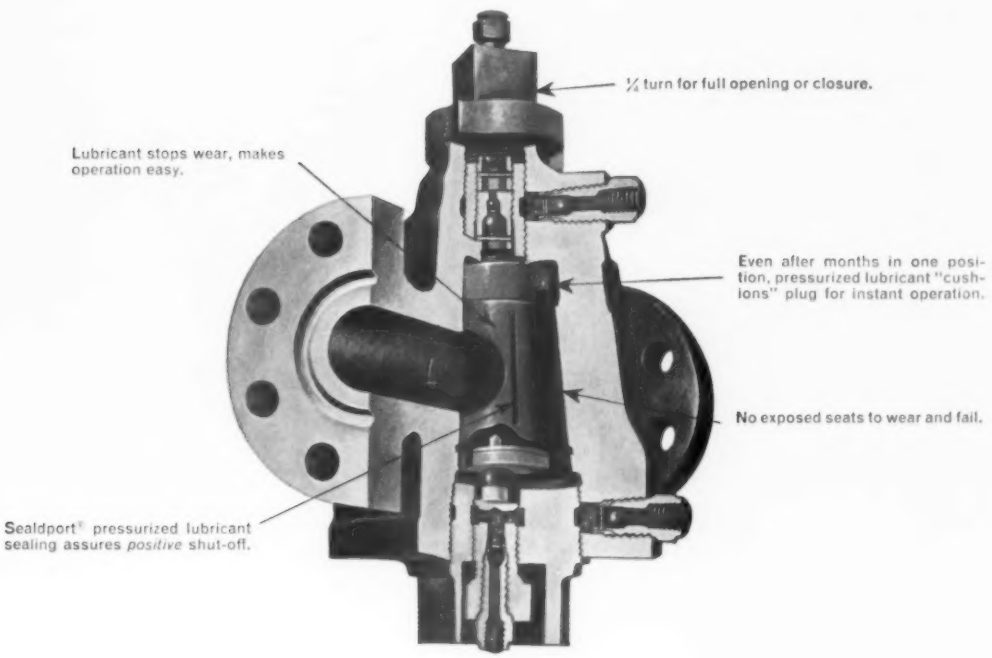
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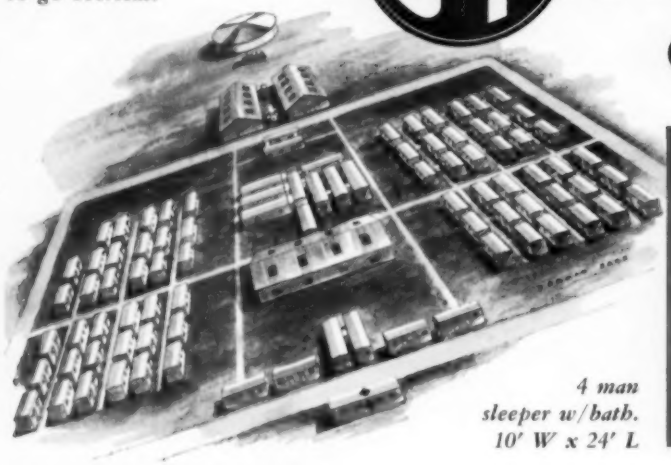
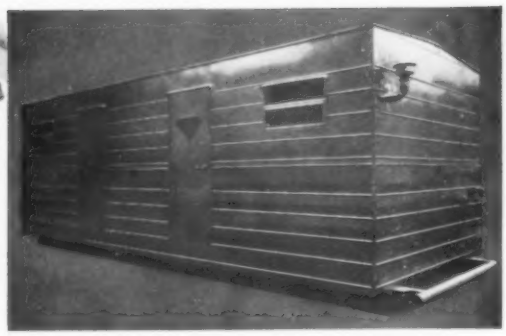


4 man sleeper w/bath. 10′ W x 24′ L



Beauty, but not just skin deep, for underneath is a brute of a frame specifically designed for oilfield handling. Thick panels of foil-faced fiberglas cover every inch of walls, floors and ceiling for optimum comfort anywhere in the world.

All S & R Camp Houses are available with oilfield type skids, heavy-duty running gear with ball hitch or 5th wheel attachment. The new combination skid wheel frame can be used as an oilfield skid or quickly converted to a wheel mounted house with S & R "Quick Disconnect" running gear.

Spacious interiors. Another first by S & R is its Tri-sleeper beds which can be quickly converted from trundle beds to twin beds or bunk beds to suit individual desires. Note the king size mattress on the top bed.

Individual clothes closets with ample storage and hanger space. Bathroom includes water closet, shower and water heater. Lavatory is in each room.

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services, such as translating, contacting foreign consuls, and keeping an eye on ports where equipment is being unloaded to see that it is properly handled."

"We work through forwarders because we feel that this is a specialized field."

However, some oil firms prefer to keep control of shipping in their own hands. "We do our own overseas shipping," explains a major-company purchasing chief, "because we think we can do it better and cheaper. Why not? This department has been in existence more than 20 years. We know all the steamship people and customs officials by their first names."

Adds a purchasing executive with another major, "We do all our own overseas shipping and only rarely work with freight forwarders. This gives us much greater control and enables us to minimize delays in shipping."

Many oil companies combine the efforts of freight forwarders and their own traffic departments. And at least one purchasing man thinks the choice isn't too important. "Our biggest problem," he says, "is simply to get the manufacturer of the equipment to deliver it to the crating company in time to make the ship."

The purchasing men are trying, although somewhat pessimistically, to get their foreign operations men to give longer lead time in requisitioning equipment. "I don't know what we can do to solve this problem," says a purchasing agent for a West Coast major. "Several times we didn't get the necessary lead time and had to send chartered planes down to South America. It looks as though all you can do is raise hell with them."

All the oil companies send constant reminders to the field. "You just keep after them," says an official with a Midwest major, "and keep them apprised of lead times, and question them periodically on supplies."

Another major is finding that it helps to furnish requisition submission dates on certain items.

To insure flexibility, most oil companies allow overseas field men to buy supplies and minor equipment items on their own. Sample policies, as summed up by purchasing men from different majors:

"It's all right for the field to buy locally rush items, small valves, fittings, furniture, paper stock, etc."

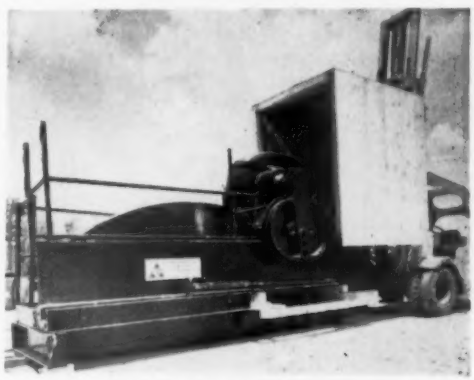
"We give limited authority, and then the purchases must be justified by immediate need or quoted prices."

"We do permit some foreign local buying, but generally we have pre-agreement on what will be purchased, and where."

There is a split opinion on the "buy locally" policies of the operators—aside from the question of requisitioning. Some companies favor local purchases for "good will" or currency reasons. Others only buy locally if that is the best buy.

"We try to buy everything we can locally," says a Pacific Coast major, "including such items as foodstuffs. It is good for foreign business and promotes confidence."

"I don't think there is a rigid policy of buying locally by many oil companies," says the purchasing head of a large independent. "We buy where we can get the best price, quality, delivery, and API specifications. However, we usually buy locally when the product is up to par."



PREFABRICATED crate prevents damage.

Pump 'Nest' Saves $8,500

Scientific packaging of oil equipment, to trim freight costs, has an unusually high potential, say oil company purchasing men—an example being the current crating of 50 pumping units for Pan American Oil Co. Supplied by Continental-Emsco, for shipment to Argentina, the pumps are being crated by Foreign Trade Export Packing Co., of Houston, at an estimated saving of $8,500. This is based on a reduction in cubic displacement of 18½% compared to a previous shipment. The units were partially dismantled, with parts "nested" into the fixed cube space, on which freight charges are based.

Oil companies are making increased use of such export-packing specialists as Lee Construction Corp. and S & R Tool & Supply Co., Houston, and Packers, Ltd., Los Angeles.

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Reprints of this report are being prepared and will be available next month. Single copies will be sent to PETROLEUM WEEK subscribers on request without charge. Additional copies will be billed at the following rates: 1-10 copies, 50¢ each; 11-100, 40¢ each; 101-1,000, 30¢ each; over 1,000, 20¢ each. Address orders to:

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Fuel Cells Will Be on the Market Soon

A major breakthrough in the development of the fuel cell may be expected in the not too distant future. Instead of hydrogen, it will be possible to use gaseous, liquid, or even solid fuels—less costly, easier to obtain, and easier to store.

This conclusion is based on a symposium on the fuel cell held last week in Atlantic City during the annual meeting of the American Chemical Society, supplemented by several PETROLEUM WEEK interviews with authorities on the subject.

The fuel cell is a device to convert the chemical energy of a fuel, such as hydrogen or a hydrocarbon, directly into electrical energy, without the intermediate step of combustion.

The ACS panel consisted of:

- F. T. Bacon, of Cambridge, England, the inventor of the "Hydrox" fuel cell, now handled in the U.S. by the Patterson Moos Division of Universal Winding Co.
- G. H. J. Broers, of Central Technical Institute, The Hague, known for his work on the high-temperature fuel cell.
- H. H. Chambers, of Sonders Place Research Institute, Dorking, England, the inventor of the "Carbox" fuel cell, U.S. rights to which have likewise been taken over by Patterson Moos.
- E. Gorin, of Consolidation Coal Co., who has done considerable work in the U.S. with very-high-temperature fuel cells.
- K. Kordesch, of National Carbon Co., which is one of the leaders in the U.S. with its hydrogen-oxygen normal-temperature fuel cell.
- H. A. Liebhafsky, of General Electric Co., also in the lead with an H-O normal temperature fuel cell.
- G. J. Young, of Alfred (N.Y.) University, known for his work on catalysis of fuel-cell electrodes.

Just when the breakthrough will occur is still a matter of conjecture, but as a fair guess, it should be within the next two years.

"How soon will the work carried out in the U.S. and abroad on the fuel cell permit us to make this efficient way of producing electricity available commercially? It depends entirely on the amount of effort and money that will be devoted to it," said Liebhafsky.

"One aspect which must be seriously considered in the development of the cell," said another panel member, "is that of adequate patent protection. The fuel cell principle is old. Many have worked at it. A company that wants to produce it commercially must make sure that it possesses at least one feature that can be protected."

There are two basic categories of fuel cells at present: those that operate at normal temperature, and those that operate at high temperatures.

The fuel cells of which National Carbon and General Electric have displayed working models to the public operate at room temperature. For the sake of convenience and safety, it is felt that small commercial applications should remain in that category.

On the other hand, the cells developed in Europe by Bacon and Chambers operate at temperatures ranging from 400F to about 1,400F, although there is an effort to remain below 460F at present. Consolidation Coal has experimented with temperatures as high as 1,600F.

The Hydrox cell also operates at relatively high temperatures; in addition, it requires a rather complex control mechanism. For these reasons, Bacon feels that in its present form, its applications will probably be confined to reasonably large equipment, preferably in the transportation field. It should give a serious competition to diesel engines, Bacon says, for locomotives and railcars, as well as large earth-moving equipment.

Dr. M. R. Hatfield and Dr. C. E. Larson, of National Carbon, gave PETROLEUM WEEK a somewhat broader perspective for their low-temperature fuel cell. Actually, they say, it is preferable to refer to the fuel cell as a "continuous feed battery," and it is as such that many of its commercial applications may be predicted. It may soon become an economical source of power for mobile, portable, and emergency equipment. It could be applied to golf carts, trucks in factories, switching locomotives, and standby powerplants, now equipped with batteries.

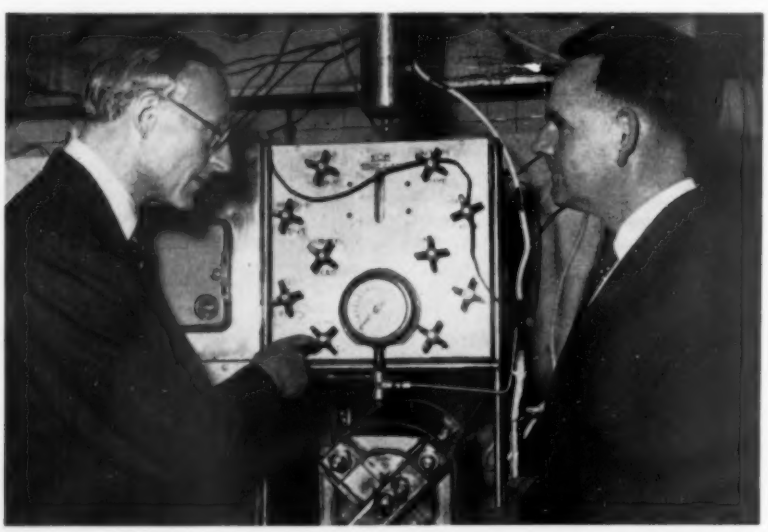
Battery powered electric cars may well be the first application of the fuel cell to the automotive industry, according to National Carbon.

It is the difference in the operating temperatures which has, heretofore, largely controlled the scope of fuels that the fuel cell can utilize. The high-temperature cells were capable of using, with reasonable success, a greater number of fuels.

Of all the fuels that have been tested with a view to obtaining one that would be both less costly and readily available, methane, the principal component of natural gas, is the most difficult to adapt to fuel cell operation. This is due to the stable nature of this saturated hydrocarbon.

"If I had to rate fuels according to the difficulty of their use in the fuel cell," said Liebhafsky at the ACS symposium, "I would give hydrogen a rating of 1, carbon monoxide a rating of 10, and methane a rating of 100."

"We do not rate the difficulties of



F. T. BACON & H. H. CHAMBERS, British inventors, examine a Hydrox fuel cell.

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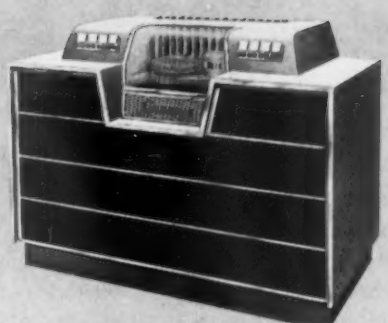

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National Tube supplied the pipe for the Laurel Line—approximately 66,000 tons of USS National Seamless and Electric Weld Line Pipe in sizes 24" O.D. to 14" O.D. for the main line and 9,000 tons for feeder lines, take-offs, and terminal facilities.

The eastern section of the main line, some 135 miles, is 24" diameter, API 5L X-52 pipe, ranging from .281 to .375-inch wall thickness. Initially, the line's throughput is expected to be about 100,000 barrels a day; however, this can be increased to 300,000 barrels with additional pumping stations. This line will make a greater variety of refined products available, in increased quantities, at a considerably lower transportation cost.

The Laurel Pipe Line represents another first for USS National Line Pipe. Why is USS National consistently chosen for rugged line pipe assignments? The answer in a word: *Performance*. You see, National Line Pipe combines the qualities of strength and dependability to give you a better product. Remember, too, that National Line Pipe is available in a complete range of wall thicknesses, steel analyses and in diameters up to 26 inches in Seamless and up to 36 inches in Electric Weld. For more information, write to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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Pacific Coast Distributors: Columbia-Geneva Steel Division, San Francisco
Export Distributors: United States Steel Export Company, New York

using these fuels in that proportion," said Chambers. "With our high-temperature cell, we would give hydrogen a rating of 1, carbon monoxide a rating of 2, and methane one of 4. Actually, we can ionize methane now, with our silver electrode cell, but the performance will be low."

The use of methanol and various other alcohols as fuels for the cell, is attracting considerable attention.

"We have had no trouble whatever with methanol," said Chambers. "Actually, it is the nearest to an ideal liquid fuel. We consider it the fuel closest to hydrogen for its ease of adaptation to fuel cell needs."

Low-temperature fuel cells are likewise capable of making use, as fuels, of a great number of ionizable materials. But their electrodes must be treated with the proper catalyst.

Alcohols have been tried in the U.S. with promising results. Apparently a catalyst that will prevent side reactions on the electrodes and in the electrolyte is an essential feature for the use of many chemicals as fuels.

Refiners are taking an active interest in these developments, which may result in the selection of a petroleum product as the most adequate and economical fuel for the fuel cell.

Speaking at the annual meeting of the National Petroleum Assn. in Atlantic City last week, Dr. W. J. Sweeney, vice-president of Esso Research & Engineering Co. said: "Our research people have been experimenting on hydrocarbon fuel cells for some time now. It is a little early to conjecture how a successful cell will be used and whether it would increase or decrease the use of oil. But whose business is it to see that it is first developed on oil, rather than on some competitive source of energy?"

For large power plant installations, the large quantity of heat produced during fuel cell operation will probably be used to convert a conventional, inexpensive fuel into carbon monoxide and hydrogen, which in turn will be ionized in the fuel cell.

"Efficient use of the exothermic reaction of the fuel cell may be applied to convert carbonaceous materials into synthesis gas or water gas," said Liebhafsky.

"Such an undertaking is of too great a magnitude for one fuel cell manufacturer to shoulder alone," said Gorin, of Consolidation Coal. "It involves a number of industries, in the fuels, combustion, and power fields. But integration of efforts between all these fields will produce gratifying results."

Plastics Used as Rocket Nozzles

Reinforced petrochemical plastics can now be used successfully to make nozzles for rocket motors, providing the nozzle design allows for their gradual deterioration.

This was reported at the annual meeting of the American Chemical Society, at Atlantic City last week, by G. Epstein and H. A. King, of Aerojet-General Corp.

In solid-propellant rocket motors, the nozzle is generally uncooled (in contrast to many liquid-propellant engines, where the propellant is used as a coolant prior to its consumption). Consequently, the surface of the nozzle is subjected to very severe thermal fluxes, as well as to mechanical erosion from the extremely hot, high-velocity combustion gases. This environment, according to Aerojet, produces possibly the most severe service condition experienced to date.

To study the best combinations of plastics, fillers, reinforcements, and design, a special unit, burning hydrogen and oxygen was set up. It produces gases at temperatures up to 6,000F.

This unit, installed in the Aerojet laboratories, is called the SPAR motor (Structural Plastics Ablative Rocket). Prospective nozzles are fitted directly into the after end of the unit.

It was found that the ablation rate (burning-off rate) of a given nozzle material and configuration depends mostly on firing time, pressure, and temperature, and is not much affected by the composition of the exhaust gases.

The tests showed that phenolic, phenolic-silicone, and amine-cured epoxy resins were most desirable for use in nozzles.

The epoxies tested were a little less resistant than the phenolic resins, but further investigation is under way, using more heat-resistant grades of epoxies.

An inert fibrous filler, consisting of "Refrasil" silica fabric, produced by H. I. Thompson Fiber Glass Co., was used with the resins. The same material was also used as reinforcement. For satisfactory performance, it was found, the fibers in the reinforcing material must run at right angles to the gas stream. Edge grain reinforcement evidently permits the gaseous

BP's Canadian Refinery Takes Shape

Towers of future processing units start to rise as construction enters the second stage at British Petroleum Co.'s Ville d' Anjou refinery, near Montreal. In the first stage of building, completed last April, 48 mi. of pipeline were laid and 22 storage tanks erected. When operations begin in 1960, the refinery will process a throughput of 1-million tons of crude annually.

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Save for areas behind the Iron Curtain, Aero Service Corporation crews are conducting petroleum surveys in almost every corner of the globe.

One technically dramatic example is the recently completed airborne magnetometer survey covering 30,000 sq. mi. of northern and coastal areas of the Spanish Sahara. The airborne record was completed in one month and, later, Aero delivered magnetic maps to the Spanish Government. The maps showed basement depths and structures. Sixteen participating oil companies are using the maps to help determine their application for exploration rights.

This survey, over previously unmapped, unphotographed terrain, could not have been completed, say Aero geophysicists, without the aid of RADAN® Doppler guidance—the newest navigational aid for airborne exploration.

Other air magnetic surveys for major oil companies are being conducted by Aero crews in Venezuela, Italy, Turkey and Australia, according to Aero's technical staff. At home, Aero is engaged in a joint survey in the Appalachian Basin.

Aero's DC-3 at advance base for 40,000 mile Doppler-guided survey.

Still other Aero crews are sighting in on mineral targets in Korea and Thailand, using Piper Apaches for excellent, low-cost "work horse" coverage. In the Middle East, Aero's available aircraft includes the B-17, which has photographed over one million square miles from altitudes of 30,000 ft.

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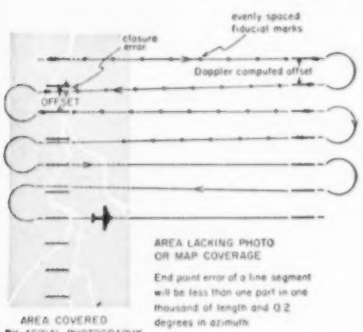
The company's complete services include airborne magnetometer surveys, geophysical interpretation, aerial photography, photo interpretation, photo mosaics, relief models, and topographic mapping. It employs RADAN®, Shoran, Lorac and Raydist plane positioning systems.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decomposition products of the nozzle to escape, without disrupting the structure.

It was also discovered that refractory protective coatings are detrimental to plastic nozzle performance.

These coatings spall under the double effect of the external flame erosion and the internal gas pressure that is produced in the resins on account of the high heat transferred. When parts of the refractory coating chip off, an asymetrical thrust condition is produced, resulting in gas flow turbulence, which further damages the nozzle.

Computer Improves Phillips Alkylation

A new reactor developed by the research and development department of Phillips Petroleum Co., and a simplified fractionation system, are part of a 6,600 b/d hydrofluoric acid alkylation plant which will be put on stream at Phillips' Kansas City refinery about Dec. 1.

This new development, Phillips engineers explain, differs from the well-known HF alkylation plants in that it is less costly to install and to operate. Tower diameters are smaller and steam and water consumption substantially lower than in other HF alkylation plants of similar capacity.

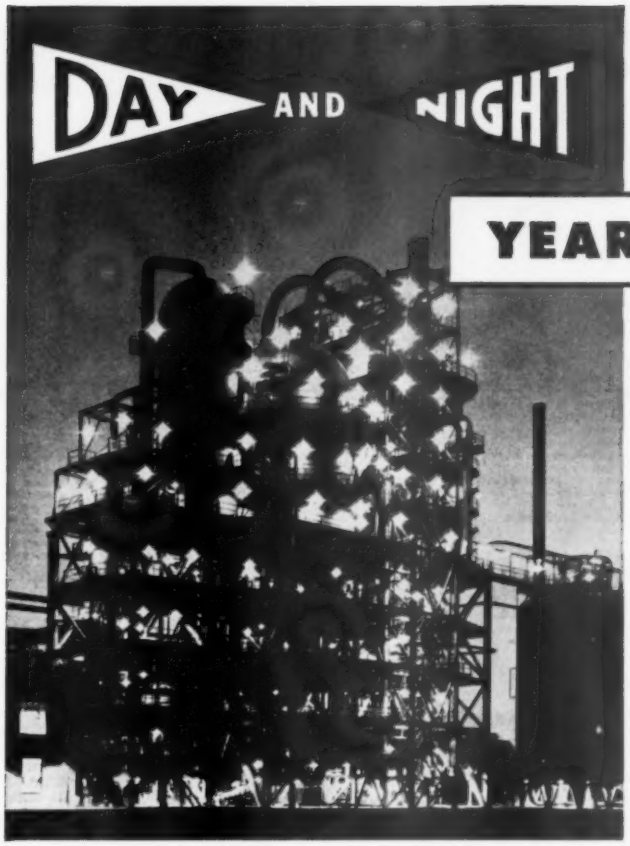
Studies have shown that deisobutanizing and depropanizing operations can be combined in a single fractionating tower for units up to 6,000 b/d. Above that capacity, as in Kansas City, two towers are needed; a single tower would be too large.

Design of the new reactor, and subsequent simplification of the process, was accomplished as a result of a computer optimization program carried on by Phillips and a specially constructed pilot plant at Bartlesville.

There the chemical mechanisms and the kinetics of HF alkylation reactions were studied on paper and at the pilot plant.

It was found that certain basic reactions—involving, for example, the formation of butyl fluoride which is, in turn, converted into isooctane—are considerably faster than was formerly believed, while certain undesirable side reactions take place at a much lower rate. By speeding up the process, it was therefore possible to promote the desirable reactions at the expense of the undesirable ones.

The result, according to Phillips, is the new reactor, which is cheaper, and which gives higher yields of a better alkylate.



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What's New

IN PROCESSING

The first commercial Butamer unit for the conversion of normal butane to isobutane went on stream last week at Standard Oil Co. of California's Richmond (Calif.) refinery.

The unit, designed and licensed by Universal Oil Products Co., is integrated with Stancal's alkylation plant; both units share the same deisobutanizer column. Normal butane charge stock is supplied from the plants new cat cracker, via the alkylation unit fractionation system. Some 5,900 b/d of reactor feed stock can be handled by the Butamer unit, producing 3,200 b/d of net isobutane product.

•

Dow Chemical Co. is continuing to expand its polyolefin production facilities.

This week the company announced plans to build a multimillion-dolla: polypropylene plant at Torrance, Calif. Completion date is set for 1961.

Within the last year, Dow has doubled its Texas production of high-pressure polyethylene, and is currently completing construction of linear polyethylene plants in Bay City, Mich., and Sarnia, Ontario.

•

A new superfractionation unit went into operation this week at Ashland Oil & Refining Co.'s Catlettsburg (Ky.) refinery.

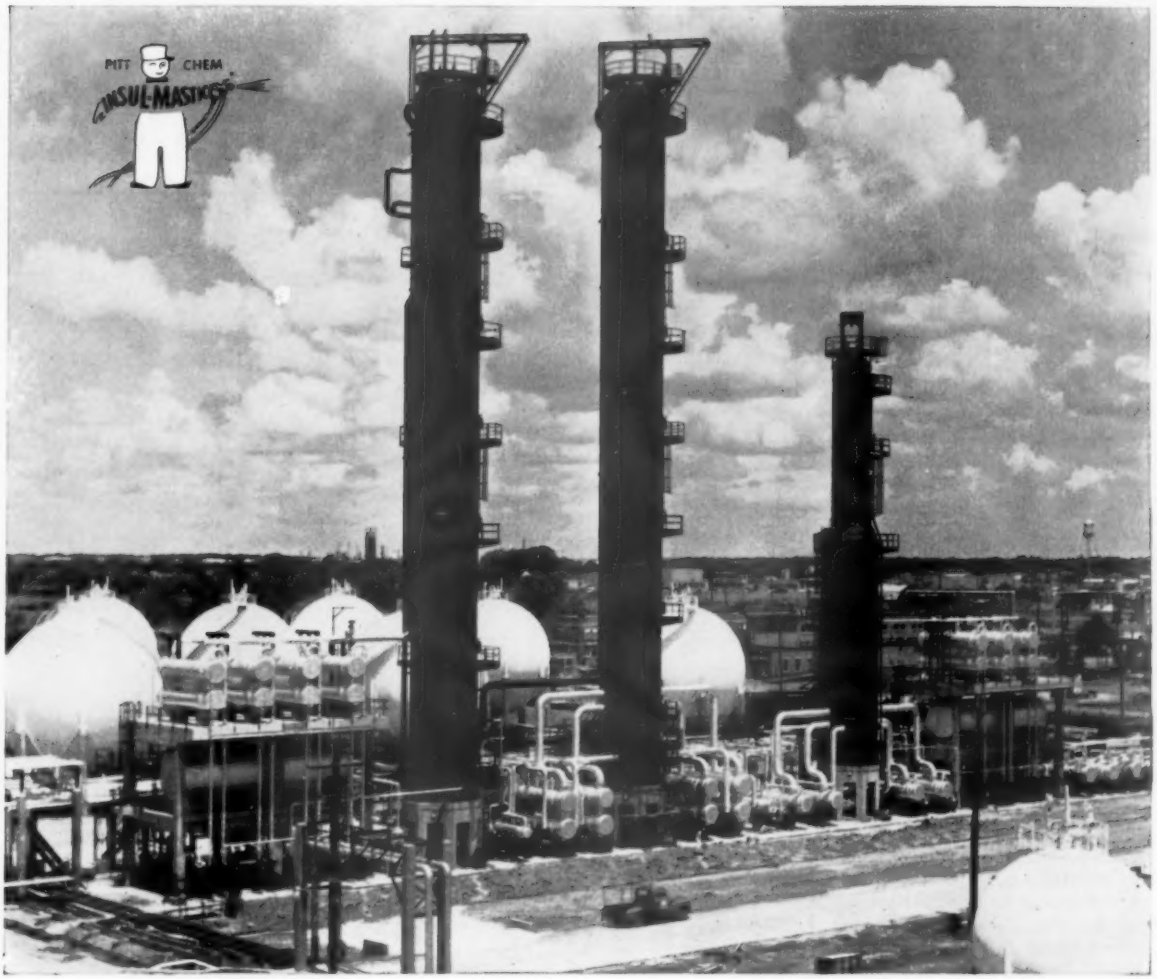
About 4,000 b/d of specialty products including naphthas, solvents, and missile, jet, and automotive fuels will be produced. Initial production indicates that a maximum capacity of 10,000 b/d may ultimately be reached.

•

Engineering

More efficient operation of natural gas liquids cracking facilities is expected through use of a general-purpose computer now being installed at Phillips Chemical Co.'s Sweeney (Tex.) plant.

Recomp, a product of the autonetics division of North American Aviation, Inc., is tied in with Phillips' data scanning and conversion system. The computer is connected to a 30-channel data scanner, which converts analog signals from sample points in the cracking process into digital pulses. These are then used to calculate and control furnace conditions and yields.



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Insul-Mastic's unique Gilsonite-asphalt formulation provides a coating that stops not only moisture vapor penetration but most common industrial fumes and spillage, as well. Unlike ordinary asphalt coatings, Pitt Chem *Insul-Mastic*, with its high Gilsonite content, is able to withstand extremes of heat and cold, expansion and contraction, and moisture and dryness.

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Constock to Build Big Methane Tankers

"The use of liquefied methane from the Middle East and elsewhere could be the most revolutionary development in the next ten years."

—WILLIAM R. CONNOLE
Federal Power Commissioner

That prediction moved a long step closer to reality this week with the announcement that Constock International Methane, Ltd., plans to build several methane tankers of up to 20,000 tons to make the first commercial methane deliveries.

Natural gas, whose principal component is methane, is one of the most plentiful resources on earth.

In the U.S., the problem of linking sources of supply with markets has been solved through an elaborate system of pipelines. In many other parts of the world, however, this proximity of source and market doesn't exist.

In countries such as Venezuela, Iran, and Saudi Arabia, which are separated by land and sea barriers from potential gas markets, great volumes of gas go untapped. Meanwhile, countries that need the gas, such as Great Britain, Western European countries, and Japan, have to make gas from coal or oil.

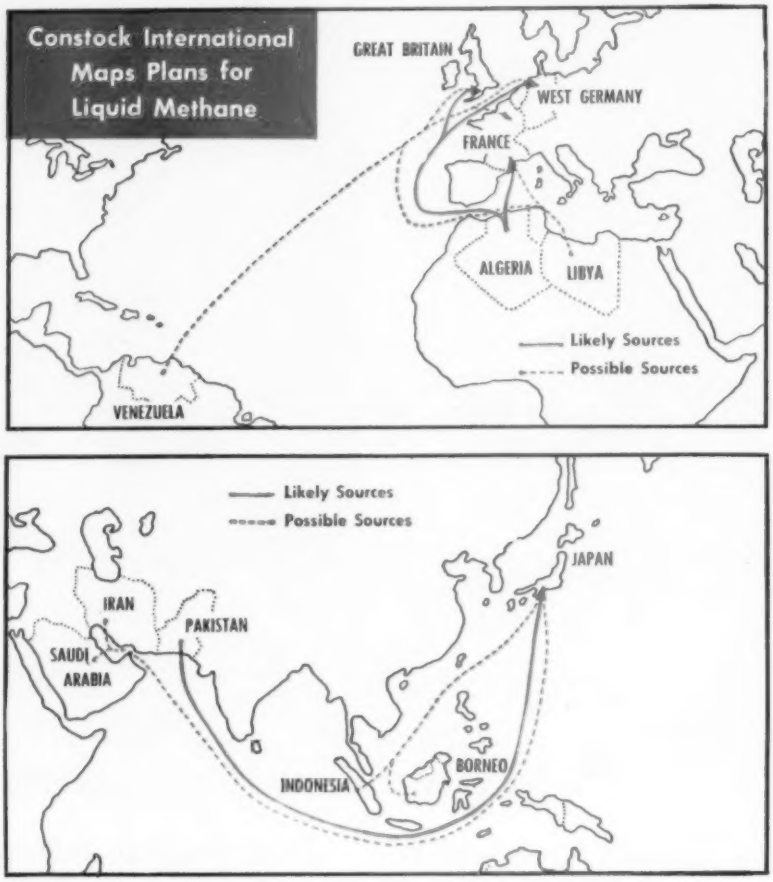
Constock's experiments with water shipments of liquid methane got under way five years ago: Result: the 2,000-ton, experimental tanker, the Methane Pioneer, first ocean ship to carry liquid methane.

In 1951, Union Stock Yard & Transit Co. of Chicago began studies aimed at barge shipments of liquid methane.

Then, in 1954, Continental Oil Co. and Union Stock Yard formed Constock. Under a $14-million research and development program, wholly new problems involving bulk shipments of liquid methane were solved.

Early in February, the Methane Pioneer successfully delivered the first of such shipments.

Trial runs by the Methane Pioneer from Lake Charles to London have proved that "the ocean transportation of liquid natural gas is now technically and economically practicable," John A. Murphy, Constock vice-president, reports.



To date, the vessel has delivered four cargoes—a total of 8,000 tons—to a terminal on Canvey Island in the Thames River. The gas came from U.S. fields, and was liquefied at a plant in Lake Charles. It was bought by the Gas Council of Great Britain, half-owner of the experimental ship.

Gas delivered by tanker will be "considerably cheaper" than gas made from coal or oil, a Constock official claims.

In Great Britain, for example. Gas made from coal costs about $1.60 per Mcf. of natural gas equivalent.

Constock won't reveal the cost estimates on which it based its decision to go ahead. But a recent report in London estimated that the price of tanker-delivered methane in London would be 59¢ per Mcf.; in Marseilles, 45¢; and in northern Europe, 63¢.

It's likely that the first commercial deliveries of methane will be made within two to three years. By then, Constock says, two—and possibly four—of the new 10,000- to 20,000-ton tankers should be built.

Constock's first commercial shipments will go to Western Europe and Japan.

Historically, Western Europe and Japan have consumed more fuel than they have been able to produce. Up to now, both countries have had to rely mainly on coal, gas made from coal or oil, and imported fuel oil.

After a recent survey of Europe's energy needs, the economic committee of the Council of Europe concluded that continued economic expansion would depend upon importation of large supplies of energy in the future.

Liquid methane will supply a large share of future European and Japa-

Mr. E. L. Brown, Supt. of B & O Railroad's Floating Equipment, says:

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Up until two years ago, Mr. Brown was plagued by a continuing maintenance problem: salt water and brine drippings from refrigerated cars were playing havoc with the steel decks of the car floats. Many coatings had been tried: even pavement-type surfaces were applied, but none gave more than 6 months' service.

Mr. Brown says, "Frankly, I was skeptical when the Koppers salesman suggested Bituplastic No. 28, a specially designed coating for outdoor exposure. But it really has stood up under our tough service. Car floats given two roller coats of Bituplastic No. 28 in 1957 have required no maintenance to date."

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nese gas requirements, officials of both countries believe. By 1975 Europe will provide a market for 750-billion to 975-billion cu. ft. of methane a year, and Japan, for 900-billion cu. ft., forecasts Worldmark Economic Publications, Inc.

The figures are based on data supplied by the United Nations.

Constock's first European market will be Great Britain, followed by West Germany and France, and then possibly by the Scandinavian countries and Italy.

A total demand of 400-billion to 750-billion cu. ft. a year by 1975 is forecast for Great Britain, while West German demand is expected to be 178-billion cu. ft., and French, 49-billion cu. ft. The forecasts are based on United Nations figures.

Deliveries to Great Britain (and Japan) are slated to begin in about two years, and to West Germany and Fraifce about a year later.

Constock hasn't set a delivery schedule for Scandinavia or Italy.

The methane to supply Europe will come from Algeria, Libya, or Venezuela—possibly from all three. Algeria appears the most likely source.

Algerian gas would come from the newly discovered Hassi R'Mel field, which is certain to become a principal European gas source.

France is studying two plans to get the gas to Europe: a pipeline under the Mediterranean, and methane tankers. But Constock believes it will be able to compete with pipeline gas.

Two French groups, Gas de France and Segans (subsidiary of SN Repal, CFPA, and the government's Bureau de Recherches de Petrole) are investigating the possibility of building a methane tanker. It's known they have sought information from Constock.

Asked if a joint venture is contemplated, a Constock official would say only that his company has been "discussing the problem of transporting Algerian gas" with these groups.

The possibility of buying Libyan gas also is being studied, but Algeria is the more likely source.

Venezuela, however, is still in the running as a source of gas for Europe.

Constock has a contract to purchase Venezuelan gas from Socony Mobil Oil Co. It also has plans to erect a liquefaction plant near Puerto La Cruz, but government permission has been withheld so far. A Constock official describes the agreement with Socony as "a fair deal."

Venezuela, however, reportedly wants Constock to take flare gas at a price the company fears may be too high, and also wants a share of the

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Watch Reynolds TV shows—"ALL-STAR GOLF" and "ADVENTURES IN PARADISE"—ABC-TV

venture. The official says that Constock is ready to put up the plant as soon as approval is given, but that "Venezuela hasn't definitely decided it wants us."

It's almost certain that most of the methane for Japan will come from Pakistan.

After also surveying Borneo, Indonesia, and the Middle East, a company spokesman reports, "Pakistan is the most convenient."

However, the other countries haven't been ruled out.

Constock has negotiated to buy Pakistani gas, and officals of that country are receptive, the spokesman says.

Present plans call for erection of a liquefaction plant in Karachi, using Sui Field gas.

Constock admits it won't be able to compete with the price of pipeline gas in the U.S. East Coast markets—not at first, anyway.

But it forecasts that in five to ten years the cost of new pipelines to meet rising demand might push the price of pipeline gas above that delivered by tanker.

What's New
IN PIPELINES

New Ticket System Cuts Time and Cost

Mechanized handling of run tickets to record receipt of crude by pipeline is saving money and time for Standard Oil Co. of California, Western Operations, Inc.

Each month Standard receives about 10-million bbl. of crude in California. The crude is transported by pipelines from several sources, including 1,100 leases in 70 different fields.

Total volume is recorded on run tickets, which resemble ordinary bank checks.

To streamline the run ticket operation, gaugers now use special imprinters, which look like the credit card imprinters that are now used in service stations.

The imprinters record the name and location of the supplier, and the accounting code number of the source of the crude.

These data appear at the head of every ticket.

With the imprinter, recording time is cut by about two-thirds, Standard says.

Other advantages: greater legibility, less possibility of error, clear carbons for the accounting office.

•

It was lack of throughput agreements that forced the Missouri-Kansas-Texas R.R. to drop plans for a products pipeline from Texas to New York (PW—Sep.18'59,p10).

Katy had planned to build a $100-million line along its own and the New York Central R.R.'s rights of way.

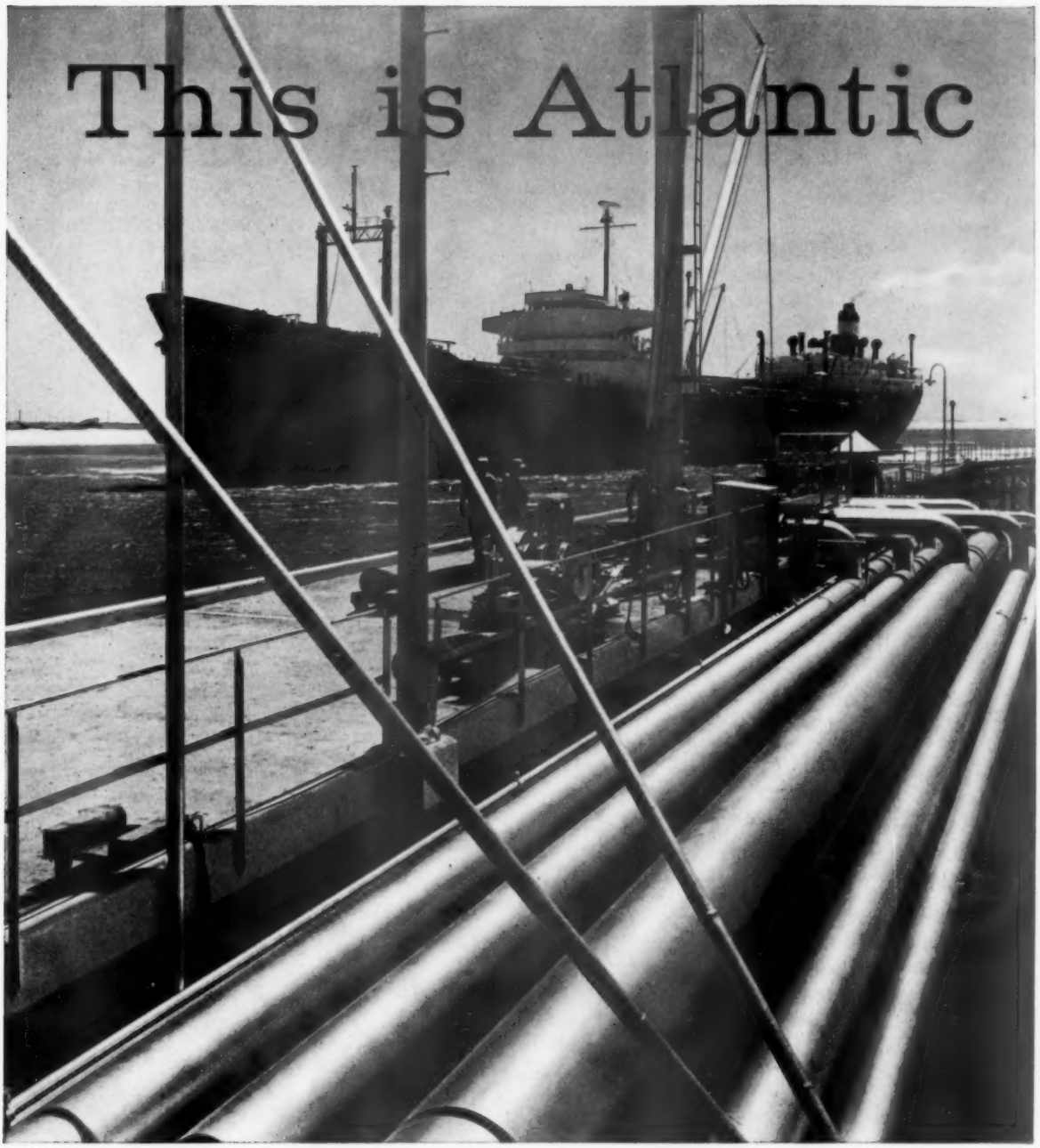
The company now envisages a $50-million products line from West Texas to Minneapolis, Minn., and Madison, Wis. It would carry propane, butane, and natural gasoline.

•

Greater regulation of oil pipelines isn't needed at this time, Charles A. Webb, Interstate Commerce Commissioner, told a National Petroleum Assn. meeting last week.

Webb's statement was in answer to a charge by the House Antitrust subcommittee that ICC "has permitted the pipeline industry to determine the extent and character of its regulations."

Webb said the reason little atten-



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TGT BUILDS another big one

To help supply what has been described as "Chicago's seemingly endless requirements for industrial and space-heating gas," Tennessee Gas Transmission Company has a big new pipeline scheduled for operation this fall.

The 30-inch line, owned by Midwestern Gas Transmission Company, a TGT subsidiary, stretches 351 miles from Portland, Tennessee, to Joliet, where initially it will deliver 255 million cubic feet of natural gas per day to utilities serving the Chicago area, increasing to 360 million cubic feet daily by the third year.

Enroute to Chicago, the line crosses six major rivers, 20 streams and canals, and 49 pipelines. Field engineering began last February; construction started in July.

Bechtel services to its long-time client on this project included all field engineering, right-of-way acquisition, double-jointing some 170 miles of 30-inch pipe and construction of 148 miles of the line.

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tion is given oil pipeline regulation is that Congress itself hasn't subjected them to the same degree of control applicable to other carriers.

•

Panhandle Eastern Pipe Line Co. is seeking a boost in its natural gas rates of $8,653,700 a year.

The increase would affect 61 utility customers in Kansas, Missouri, Indiana, Illinois, Ohio, and Michigan.

•

The newly formed Japan Liquefied Gas Transportation Co., Ltd., is building Japan's first LPG tanker.

The 1,140-ton vessel is slated for completion in December.

The tanker will carry liquefied waste gas for butadiene extraction.

•

Tonnage of petroleum products carried intercity by truck gained 9.3% in this year's second quarter as compared with the same period last year.

Interstate Commerce Commission figures show that trucks hauled a total of 21,844,741 tons of petroleum products, about 25% of total freight tonnage carried intercity by truck.

•

Great Britain's biggest tanker, the 50,000-ton British Queen, was launched last week.

The ship is still being fitted out. Among its "fittings" will be a swimming pool for the crew.

•

The Alberta Oil & Gas Conservation Board has set Oct. 13 for a hearing on a request by Trans-Canada Pipe Lines, Ltd., to boost natural gas shipments from the province.

Additional new volume sought totals 695-billion cu. ft.

At the same time, Trans-Canada is asking upward revision of permits now held, from 5.9-trillion cu ft. to 6.3-trillion cu. ft.

Tennessee Gas Transmission Co. would be a major customer for the Trans-Canada gas. TGT would receive the gas at Emerson, Manitoba, for wide distribution to consumers in the Upper Midwest (PW—Jul.24'59, p35).

Examiner hearings are currently being held before the Federal Power Commission on TGT's petition to import the gas to midwestern states (PW—Sep.18'59,p22).

SUPER TANKERS EASILY LOADED OFFSHORE WITH H-R SUBMARINE HOSE

Add Riverhead, Long Island, to the long list of ports where Hewitt-Robins submarine hose meets tankers at sea! Already on steady duty in such waters as the Eastern Mediterranean, Pacific Ocean, and Arabian Gulf, H-R submarine hose enables tankers to load or discharge through underwater pipelines connected to storage tanks ashore.

The Riverhead pipeline is 7,200 feet long. The hose itself (the first East Coast installation) is 175 feet long. It is reinforced with multiple layers of heavy fabric and steel wire, and can take an end-to-end pull well in excess of 115,000 pounds. It withstands high internal pressures from ships' pumps and the external pressure of a 67-foot depth, and resists kinking and flexing action during rough water usage.

H-R submarine hose resists both coral abrasion and rot, and has given over 10 years of continuous service in installations abroad. It is available in sizes up to and including 16" internal diameter. For information or service, contact your local H-R representative, or Hewitt-Robins, Stamford, Connecticut. Ask for Bulletin 9-20.

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DEPT/International

Iraq Slates Refining for Export

BAGHDAD—Iraq's newly created Oil Ministry is putting government refining for export at the top of its "things to do" list.

Its signposts to future policy were staked out in a lengthy statement recently broadcast over Radio Baghdad. Its specific aim was to rebut increasing criticisms in non-Communist Baghdad newspapers, some of which only recently resumed publication.

The Ministry says it is considering plans to operate government refineries at full capacity of over 60,000 b/d and to export the surplus over domestic demand, which is now 25,000 b/d.

Besides bringing in additional revenues, this would significantly cut present high production costs, the Ministry adds.

It thus appears prepared to take full advantage of Iraq Petroleum Co.'s recent agreement to supply crude at cost if the government wants to export any "incidental" surpluses resulting from operation of its refineries at their "existing designed capacity" (PW—May22'59,p33). Heretofore, IPC has supplied government plants at cost for domestic market requirements only.

The company has also agreed to the government's taking its 12½% royalty in oil within Iraq for any export refinery it may consider building.

Possible expansion of the refineries to produce further types of products for domestic demand and export is also under consideration, the Ministry says.

The Ministry also has these related moves in mind:

- Doubling production of LPG to supply 50,000 homes with bottled gas within two years, thus displacing considerable kerosine which will then be available for export.
- Improving product distribution throughout Iraq.
- Replacing about 50% of the engineers now employed in the refineries with skilled workers through a technical training program.
- Producing locally as many spare parts as possible for maintenance of refining and distribution installations.

Also on the list is government oil development, with prospects considered "extremely promising," both at Khanaqin and in Iraq's Persian Gulf waters.

Both areas, formerly under concession, were surrendered within the past year. Khanaqin is a small field in east-central Iraq, near the Iran border. It was relinquished by British Petroleum Co.'s Khanaqin Oil. The Persian Gulf offshore area is untested and was relinquished by IPC.

The oil from inland Khanaqin, as well as from the offshore area, would be exported from the Persian Gulf as either crude or products, according to the Ministry.

When the existence of oil in economic quantities is confirmed, the "necessary measures" would be taken, either to build an export refinery at Basra to process the oil, or to link the fields with the port for exports of crude.

To refute charges of mismanagement in GORA, the government refineries administration, the Ministry says it had been able to save more than $3½-million in cash after 13 months under the revolutionary regime, even though it started with a deficit.

The savings would exceed $14-million, the statement continued, if these factors are taken into account: GORA repaid $2.4-million in credits to the Central Bank; it paid a $5-million installment to Foster Wheeler, Ltd., for expansion of the Daura refinery near Baghdad; its sales dropped by $2.9-million due to lower gasoline prices and an economic slump.

These savings, plus other economy and reform measures, enabled GORA to take over the countrywide distribution network without resort to the state budget for capital, the Oil Ministry claims.

As a result of the plan to dispense with all foreign technicians, the Daura refinery—Iraq's biggest—is now run by Iraqi personnel," assisted by 21 Soviet experts who work as advisors only." Their annual costs "do not exceed $226,800," the Ministry says.

Pakistan-India Gas Line Talked

KARACHI—India is interested in buying Pakistan's natural gas and piping it to Bombay, according to reliable sources here.

India thus may become one of the first export markets for West Pakistan's big Sui gas field. Tanker shipment of liquefied methane from Sui to other Far East markets also is currently under consideration (page 76).

If a deal materializes, the two governments would jointly build a pipeline linking industrial areas in West Pakistan and India, each building the section within its own borders.

According to proposals under consideration, the line would branch off the 350-mi.-long Sui-Karachi gas line at or near Hyderabad, 120 mi. from Karachi, possibly running via Ahmedabad to Bombay, along a route once surveyed for a proposed Karachi-Bombay rail link. That plan was given up after the 1947 Partition.

New gas finds have been made in both sections of Pakistan, while production in the Sui field has been increasing as fast as domestic outlets for it can be found.

Standard Vacuum recently found gas in its Mari wildcat in West Pakistan, 260 mi. northeast of Karachi, in quantities that are expected to prove commercial. And the British-owned Pakistan Petroleum, which discovered the Sui field, also has found gas in commercial quantities at Sylhet and Chatak, in East Pakistan.

Esso Plans Pipeline, Refinery in Libya

Esso is already considering plans for a pipeline outlet for its Zelten oil in Libya, plus a refinery for export as well as local consumption.

Esso has commissioned Brown & Root, Inc., of Houston, to do the preliminary engineering on a 32-in. pipeline, reportedly to be automated.

Two routes are under consideration for the pipeline. One would be northwest from Zelten to the coastal town of Agheila, about 100 mi. The alternate proposed terminal is Benghazi, some 200 mi. from Zelten. Whichever city is selected would also be the site of the proposed refinery.

For cost reasons, Esso prefers the shorter route to Agheila, but informed oil men believe that the Libyan government prefers Benghazi.

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All through Asia, Africa and the lands of the Pacific, the steady growth of industry and commerce calls for more oil. Here Standard-Vacuum is working to meet this demand—by searching for new sources of oil, drilling for it, transporting and refining it, and delivering the finished petroleum products when and where they are needed.

STANDARD-VACUUM OIL COMPANY POWERS PROGRESS

White Plains, New York

First U.S. Tests in Sahara Find Gas

Two U.S. firms—Sinclair and Phillips—and their French partners have found indications of gas in their initial wildcats in the French Sahara. The two tests are the first drilled on Algerian acreage in which U.S. firms hold an interest.

The Phillips group's test is only 60 mi. south of Hassi Messaoud, the Sahara's largest oil field. Phillips and its partners, Copefa and Omnirex, spudded TG 1 on their Hassi Touareg acreage last May.

The test is also just southeast of the recent discoveries at Hassi El Gassi and El Agreb, where crude similar to that at Hassi Messaoud was found under similar lithologic conditions.

The wildcat flowed considerable wet gas from a 50-ft. section. After discovering a cut of oil in rock fragments, the operators tested the interval at 5,026-75 ft., below the Triassic salt. The result was 77,692 cu. ft. of gas with 379 gal. of condensate in one hour.

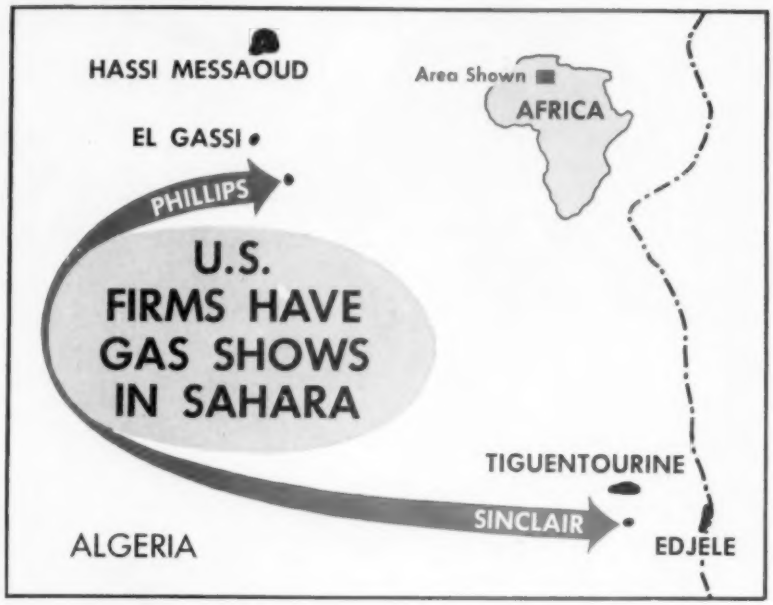
Tests made at other intervals yielded negative results. The wildcat is currently being drilled below 6,112 ft. in the lower Triassic.

Phillips and its partners hold some 6,200 sq. mi. on four tracts. Phillips has a 25% interest in three—including the one being drilled—and 49% of the fourth.

The Sinclair group's test repeatedly found gas and water at intervals which produce oil in nearby fields close to the Libya border.

Between 3,481-632 ft. in the Devonian, which is a good reservoir in nearby Tiguentourine, the Erg Bourahet wildcat flowed a small amount of gas with salt water. Between 4,275-488 ft., also productive at Tiguentourine, there were gas traces and more salt water.

Finally, in the 4,668-5,108-ft. interval, in the Devonian, which corresponds to the F-4 reservoirs at Edjele and Zarzaitine, there was a heavy flow of sweet water. The test is now being drilled below 7,283 ft.



The Sinclair wildcat lies in the Fort Polignac basin, in southeastern French Sahara, where exploration as a whole has been highly successful. The Edjele, El Adeb Larache, Tiguentourine, and Zarzaitine fields are all located in this area. Production is from the Paleozoic, with four zones defined.

The Sinclair group holds 4,900 sq. mi. on eight tracts in this area. Sinclair holds 27% interest, Newmont Mining 18%, and the rest is held by Safrep, Ovaim, and Eurafrep.

A second test will be started north of the present wildcat as soon as a favorable location is spotted.

But before that, Sinclair will stop to take another look at its Erg Bourahet acreage, on the basis of the new information gained as a result of the present wildcat. This information will be applied to surface and seismic data available, and the area reassessed.

Geophysical crews are at work on two other permits held by the Sinclair group—the Bordj Nili and El Fakir tracts. Drilling is to start next year.

Operators for other U.S. interests in the Sahara are carrying out preliminary investigations and hope to begin testing soon.

Cities Service and its French partners hope to begin drilling early next year. At present, they have two seismic

CITIES SERVICE FIELD PARTY pauses at a Sahara oasis with geologists Maurice (Moe) Kennedy, on the far left, and Fred Dorkel, third from right.

crews and surface parties at work on some of the 36,000 sq. mi. of their permits. A location will be chosen when the French operator reviews prospects. Cities Service has a 15% interest in 32,500 sq. mi. and 49% in 3,500 sq. mi.

Esso expects to begin seismic work next month on the northern part of its 8,000-sq. mi. Grand Erg Oriental concession, near the Tunisian border. Esso is the operator on the block, with 50% interest.

Indiana Standard's Franco-Internationale des Petroles and its French partners will start seismic work this fall on their Hassi Nador permit. The U.S. company has a 42% interest in the 1,700-sq. mi. concession, which is 100 mi. north of Hassi Messaoud.

Franco-Delhi, subsidiary of Clint Murchison's Canadian Delhi Petroleum, is conducting seismic work on the Daiet el Habs permit, in which it holds a 49% interest and serves as operator.

At present, only the largest and more obvious structures are being tested, in an attempt to evaluate the greatest amount of acreage in the shortest possible time. Even after the structural areas are tested, there will remain large regions that may contain stratigraphic traps.

Only a small portion of the area's geology is well known. And much of the available geophysical data is not reliable because of technical difficulties involved in getting it.

Refining Plans Spotlight East Africa

New refining plans emerged last week for Kenya and Sudan; and two new exploration grants were made in Sudan.

The refining plans, in particular, made the flurry look like a rush to sew up the future East African market, in line with the worldwide trend toward building refineries in consumption centers. There are no refineries in East Africa south of Egypt, nor had any been definitely slated until now.

The two new plants are joint Royal Dutch Shell-British Petroleum ventures. The Kenya deal is now firm; the Sudan proposal hasn't been accepted yet. Sudan is apparently still also weighing a refining bid from Italy's ENI, which is in process of getting marketing rights.

ENI has already been granted the first exploration rights under Sudan's new 50-50 oil law. The grant covers 3,280 sq. mi. along the Red Sea coast.

Sudan's new oil rights went to General Exploration Co. of California and to Shell, with Shell's limited to preliminary survey work only.

General Exploration, a Los Angeles firm, got an outright grant of seven prospecting licenses, covering some 1.4-million acres along the Red Sea coast. According to vice-president W. F. Cooks, exploration will start in the near future. The company already holds a concession in Australia, and hopes to get extensive acreage in Burma shortly.

In confirming its own agreement with Sudan, Shell said it had been given permission to make a geological survey of 185,000 sq. mi. of northwestern Sudan, a project it expects to complete in about five months. It stressed that the current rights cover the survey only.

The Shell-BP offer to build a refinery in Sudan will stand on its own, without regard to Shell's survey of oil prospects, or to discovery of oil in Sudan.

The plant would be built at Port Sudan, and would meet Sudan's "total requirements" of the major products. Oil demand there last year totaled 8,000 b/d, Shell says.

The refinery that Shell-BP will build in Kenya is open to participation of other companies marketing in East Africa, by requirement of the Kenya government (PW—Sep.18'59,p69).

The $36-million plant will be built at Mombasa, with capacity of 28,000 b/d when it goes into operation in 1963. It will meet estimated demand in Kenya, Uganda, and Tanganyika for gasoline, kerosine, aviation turbine fuel, gas oil, diesel fuel, and fuel oil, Shell says. Last year demand for those products was 22,500 b/d.

Betancourt Bars Strike in Oil

(By cable from PETROLEUM WEEK's *Caracas Bureau)*

CARACAS—Venezuela's President Romulo Betancourt served notice last week that he does not intend to permit a strike in Venezuela's oil industry over industrywide contract renewal.

He justified his decree ending a brief strike against Richmond Exploration Co. (PW—Sep.18'59,p10) with the argument that "normal progress of petroleum activities in the country is essential to the economic and social life of the population."

Although the decree does not specifically refer to bargaining over the industrywide contract, the argument would apply with even greater force in the event of an industrywide strike.

The possibility that the government may have to intervene to reach a contract settlement is raised by rival political tensions within oil workers' unions. These were underlined by the strike against Richmond, on the eve of general contract talks.

Further, another oil industry strike —by 150 workers of Halliburton Oil Well Cementing Co.—flared later in the week at Anaco and El Tigre.

Rivalry in the oil workers' unions is mainly between Communists and labor leaders of Betancourt's Accion Democratica Party.

The strike against Richmond by the Organization of Petroleum Workers & Employees, of Maracaibo, was Communist-led. A majority of Richmond workers reportedly opposed the strike. But the union subsequently refused to name a representative to the obligatory arbitration board set up under the presidential decree.

On the other hand, the Venezuelan Oil Workers Federation (Fedepetrol), with which the Maracaibo union is affiliated, is dominated by Accion Democratica leaders. Fedepetrol acquiesced in the Richmond strike and also joined the Maracaibo union in protesting the arbitration decree.

The union contract negotiators may feel they cannot afford to make the concessions necessary to reach a peaceful settlement with oil companies, even though Accion Democratica's over-all strength in the oil worker unions is greater than that of the Communists.

Government spokesmen have termed the possibility of a strike "disastrous."

Defending the Richmond decree, Minister of Mines & Hydrocarbons Juan Perez Alfonzo declared: "All of us depend on petroleum. The decree was in behalf of all Venezuelans."

The Richmond decree brought labor protests that the government is encouraging oil companies to take a stronger stand in upcoming talks.

What's New / AROUND THE WORLD

ENI Gets Backing For Bavaria Line

WEST GERMANY—One of several plans to carry a trans-Alpine pipeline into Bavaria from the Mediterranean took a big step forward last week: Italy's state-owned ENI and a German bank group formed a joint pipeline company in Munich (PW—Aug.28'59,p40).

The new Suedoel AG Erdoelwirtschaft will tie in with ENI's over-all plan to complete a $60-million pipeline network in 1962 running 1,000 mi. from Genoa to southwest Germany. It would include: an initial 28-in. section to Aigle, Switzerland, which ENI is building jointly with a Swiss group; 24-in. pipe to the Swiss-German border; 16-in. pipe to Munich; and an 18-in. branch into the southwest German area.

•

News on Spain's Oil Bids

Spain's Hydrocarbons Office will accept revised oil bids through Oct. 10, it announced last week. They'll be opened Oct. 13, but awards won't be forthcoming before late October.

Union Oil Co. of California is expected to get into mainland exploration through an agreement with Petrolifera Iberica, a private Spanish company that has applied for 12 tracts. Union itself applied only for Spanish Sahara acreage.

The Caltex companies (through Amoseas) have now signed to explore mainland acreage of Campsa, the state marketing monopoly. The deal presumably covers Campsa's existing holdings, as well as 11 new mainland tracts it requested. Caltex has also applied for 5 mainland tracts of its own.

•

UNITED KINGDOM — Complete offshore drilling installations will be available for package purchase in sterling from a new company formed by three British structural engineering firms, who also hope it may fabricate U.S. equipment.

The new Woodfield Pickering, Ltd., has been set up at Wishaw, Scotland, by: R. Y. Pickering; Fairfield Shipbuilding & Engineering; and Woodfield (Rochester), Ltd., of Kent, England, which manufactures Ideco equipment under license.

•

CHILE—Groundwork for expansion of Socony's Chilean marketing has been laid with formation of a new company, owned jointly with Chile's biggest marketer, the privately-owned Copec (Cia. de Petroleos de Chile).

Initially, operations of the new Mobil Oil Chile Ltda. will be limited to blending of lubricants at a $975,000 plant it is now building at Vina del Mar.

Expansion of its activities is envisaged, though Copec retains its own network of 300 service stations.

•

LIBYA—Another new land play is taking place—in southwestern Libya. Gulf, Pan American, Shell, and Socony are all bidding for Zone 4 acreage. Three applications have been filed for acreage in the northeastern part and two others for the extreme south, Murzuch basin in the south of Pan Am's recently abandoned block 76 test.

•

PARAGUAY — Pure Oil, after spending $6-million on four dry holes, is stepping back to survey the situation. The fourth test, which had noncommercial gas shows, was abandoned below 10,000 ft.

Pure and its partners—Gulf, Sinclair, Tidewater, and Williams Bros.—have ceased drilling, and have returned 79% of their Chaco concession to the government. There are no immediate plans for future drilling on the remaining 3-million acres.

•

PAKISTAN—Private Pakistani capital will be offered 40% of shares in a company that a four-company group will set up to build a 30,000 b/d refinery near Karachi, according to an agreement announced by the government this week.

The participants—Caltex, Stanvac, Burmah Oil, and Royal Dutch Shell—have not yet worked out their split of the 60%. The $31-million refinery, capable of expansion to 40,000 b/d, will go into operation in mid-1962.

•

SICILY—British Petroleum is giving up its 87,347-acre Vittoria permit, on which it found 8-gravity crude in 1954. The concession, twice renewed, was granted in 1951 to BP's Cisda.

•

UNITED KINGDOM—Oil demand was up 18% in 1959's first half, with power stations accounting for three-quarters of the gain. According to the Petroleum Information Bureau, total demand was 17.9-million tons, up 2.7-million from the same period last year.

•

Wildcats in the News

GABON—Socony's French partner has recovered 27 bbl. of 46-gravity crude on 2-hour drill stem test from about 2,000 ft. in its No. 1 Rembokotto. The wildcat, located 60 mi. southeast of Port Gentil, has a 14,700-ft. target.

IVORY COAST—Plymouth Oil Co. and its French partner have resumed drilling their first wildcat just east of Abidjan. A heavier rig was brought in and is now drilling below 12,700 ft. Since this is their first test, it may be carried deeper than the original 13,000-ft. target.

LIBYA—Pan American has abandoned its A-1-76 wildcat in the Fezzan at 5,474 ft. in the Cambro-Ordovician.

TURKEY—The fourth in a series of wildcats in southeastern Turkey was spudded last week by Bolsa Chica Oil Corp., Los Angeles independent. The No. 1 Silvan is 12 mi. west of the recently abandoned No. 2A Hazro.

PHILIPPINES—A wildcat slated for 8,000 ft. was spudded last week on the island of Panay as a joint test by Philippine Oil Development Co. and San Jose Oil, controlled by the Buckley interests of the U.S. The No. 1 Tigbauan is 3 mi. south of No. 1 Oton, abandoned at 6,354 ft. by Podco, after only minor shows, in 1953.

PORTUGUESE TIMOR—A second wildcat site is being selected by a U.S.-Australian group, which has just abandoned its No. 1 Ossulari at 6,755 ft. A 50% interest in the joint venture with Timor Oil is held by Tradewinds Exploration, of Denver, and Sunset International Oil, of Los Angeles.

Standard Oil Company of California, Rig LAI #173, Inglewood.

Servco Pilot Mill mills up 170′ of 5½″, 15.5#, J55 casing in 16 hours, 50 minutes!

In this Standard string, two separate sections of 7″, J55 casing, totalling 170′, were swaged to 5½″, 15.5# and run opposite independent producing zones. After cementing and testing, the swaged areas were milled out with one 6½″ Servco Pilot Mill in 16 hours, 50 minutes!

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DEPT/Marketing

Oil Burner Service Goes Scientific

Operations research has come to oil jobbers; Meenan Oil Co., in Levittown, Pa., is experimenting with applied statistics to solve the problem of providing fast service for its 16,000 home-heating accounts there.

The new system, which is now in its third month of application, was described to 300 jobbers at the fall meeting of the Empire State Petroleum Assn. last week by William C. Henwood, vice president of Meenan Oil. Henwood told the jobbers that his company's radically new approach to repairs and maintenance has helped take "some of the hysteria out of service."

Jobbers have come to realize that only by offering complete and efficient service will they be able to retain their heating oil customers.

Henwood flatly told PETROLEUM WEEK that, "if a jobber cannot offer service, he'd better get out of the business." And William G. Kane, president of Lewis Associates, Port Washington, Long Island, told ESPA last week that when a jobber turns his service calls over to a plumber or outside service man, he may as well let his competitor's representative advise his customers.

The heart of Meenan Oil's scientific approach to burner service is a chart that indicates the number of calls that can be expected on any day of the year.

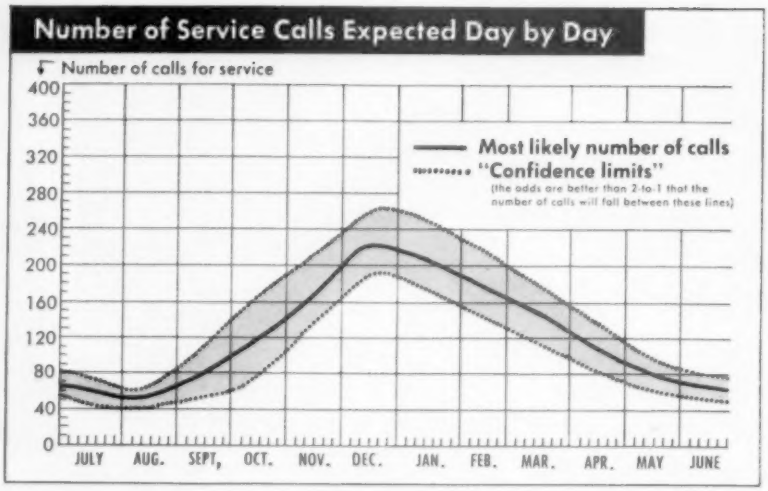
The chart was derived from seven years' accounting records by two Rider College professors. From these figures, they made a detailed forecast of the expected number of calls that will be made throughout the year.

Their chart of the most probable number of service calls also indicates the expected variation from normal within known confidence intervals (chart).

Thus, for example, Meenan Oil knows that today—Sept. 25—the most likely number of service calls will be 90, and that the odds are better than 2-to-1 that the number will fall between 50 and 120.

Such information has proved to be of remarkale value in scheduling service workers. Not only can Meenan plan monthly schedules ahead of time, but the company can also anticipate its labor requirements on a daily basis.

By 10 a.m. each day, Meenan's dispatchers are prepared to schedule the number of service workers they'll need for the rest of the day and night. The Rider College professors have found that the total number of calls to be received in a 24-hour period can accurately be predicted on the basis of the number of calls received between the hours of 7 and 10 in the morning.



OPERATIONS RESEARCH was the basis for this chart, which tells Meenan Oil how many service calls to expect every day. With accompanying charts, Meenan can schedule its workers so that no oil heat customer need wait longer than two hours for service.

The professors also discovered that service calls reach a peak during certain hours of the day—following a pattern that is fairly consistant from one day to the next, with variations occurring from month to month.

Thus, with a series of 12 monthly charts, the service dispatchers can predict not only the total number of workers they'll need, but also the hours when most of the calls for their service will be made.

Meenan's charts of expected service calls also provide a bench-mark to which abnormal activity can be compared.

For example, for the first half of August, the chart predicts 699 service calls. But 824 were actually received. Meenan discovered that this variation from normal was caused by an unusually large number of calls for tank pump-outs.

The first two weeks of August had been extremely rainy. But it was not the weather alone that was pushing Meenan's service curve off its course. Henwood discovered that delivery drivers were not replacing underground tank caps securely enough to prevent the tampering hands of children from removing them. Furthermore, Henwood told ESPA, he discovered that drivers were failing to report cracked fill boxes.

These lapses in service might never have been uncovered if the chart had not given Meenan reason to suspect that something out of the ordinary was going on.

When the weather improved in the latter half of August, service calls returned to normal: The chart predicted 796, and 797 were actually received.

Meenan Oil's application of operations research—though not yet completely validated—has already suggested ways in which burner service can be made more efficient.

"We found that the average time our customers had to wait for service was two hours," Henwood said. "But some had to wait as long as six hours. Henwood is confident that, by using the charts, he can schedule maintenance workers to meet the peak demand for service, and not keep any customer waiting more than two hours.

But another problem arises—idle man-power. If Meenan keeps its men ready to meet the peak demand for their service, the company will incur a considerable number of idle man-hours—particularly in the winter, when most of the service calls are made.

Henwood is beginning to believe that he had better shift the summer burner inspections to the winter, just to siphon off some of this extra time;

Last year, traffic accidents killed 37,000, injured 1,400,000

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but what will he do with his service workers in the summer? Longer vacations? Shorter work week? Possibly a second burner inspection?

Henwood told PETROLEUM WEEK that he's not entirely convinced that burner inspections are worthwhile, anyway. On the other hand, he said, perhaps a second burner inspection will eliminate some of the calls for emergency service. "Our aim is to flatten out the service curve," said Henwood. "A second burner inspection may be the way to do it."

By applying operations research, Meenan has also discovered that it can get along with 14 instead of the present 18 workers on the service staff. And there's another reason for thinking that fewer workers are needed: "We've learned that service calls don't take as long as our men have told us," Henwood explained.

Because of the success it has achieved with operations research thus far, Meenan Oil is planning to extend its use of O.R. into other areas, such as burner parts inventories and truck deliveries.

Meenan's professors are now grappling with the tough problem of how many of which parts to keep in stock to service 16,000 home oil burners.

Meenan is already toying with the idea of introducing operations research into its truck deliveries.

Oil Heat Unity Takes Shape

Oil heat's new national organization is rapidly taking form on the drawing boards of API's pioneering task force.

According to L. S. Marshman, chairman, the task force will be ready to announce its recommendations to the American Petroleum Institute's Marketing Division at the API annual meeting in Chicago in November.

The seven-man group is part of the promotional subcommittee of API's Fuel Oil Committee. It has been working for almost a year on the problem of pulling oil heat's scattered promotional resources together under one roof.

The National Fueloil Council—an interim step toward unifying oil heat promotion—will expand on Jan. 1, when three more refiners join the nine now in the group.

Willard W. Wright, vice-president of Sun Oil Co., told PETROLEUM WEEK last week that his company has decided to join NFC "now that the council and API are in agreement as to the program they will follow."

A spokesman for Standard Oil Co. (Ind.) says his company decided to join NFC because the council is planning to expand its activities and campaigns into the Midwest. Heretofore, according to Indiana Standard, NFC had been concentrating on the East, where Indiana Standard does not market. Tidewater Oil Co. has also indicated that it plans to join NFC next year.

The council is the channeling body between the refiner-members, who contribute ½¢ per gal. of their heating oil sales to a promotion fund, and participating local and regional groups, who receive one dollar for every dollar of their own that they spend in their oil heat promotion campaigns.

It is generally expected that NFC will join the new organization when it is formed in mid-1960.

It is also expected that Oil Heat Institute of America will join, but its 65 chapters and 84 manufacturer members will have to ratify the move.

Both the president of OHI, Fred Heaney, and the president of NFC, Bob Gray, are members of the API task force.

Once the new organization is formed, still more refiners are expected to join the united campaign against competing fuels.

The exact setup of the new oil-heat promotional organization has not yet been settled. It may be along class-of-trade lines, or it may be broken down according to functions.

With a class-of-trade structure, the organization would separate its refiners, equipment manufacturers, distributors, and other groups into separate sections. The present Oil Heat Institute follows this structure.

A functional structure would break up these class groups and form them into divisions devoted to promotion and communications, education, research, and other categories.

Marshman said last week that the task force is not yet certain which structure would be preferable. The goal of the group is "to arrive at the structure that will be most effective and which will command the greatest industry support."

The promotional budget for the new oil heat organization is expected to amount to more than the National Fueloil Council's $1.8-million for 1959.

But no attempt will be made to match the American Gas Assn.'s promotional budget dollar for dollar. This year, for example, AGA will spend $5.2-million for promotion.

Oil's emphasis will be placed more on efficient and effective use of the expenditures, rather than simply increasing their amount.

Slot-Machine Gasoline Comes To Houston

When the station attendant goes home, the gasoline pumps stay open. A coin-operated attachment is switched on, allowing motorists to drop anything from nickels to half dollars into the pumps (actually into the gray box on the stand next to the pump) and serve themselves.

Both Humble Oil & Refining Corp. (picture) and Magnolia Petroleum Co. are experimenting with these pumps.

When the same idea was tried by another company in Wyoming the state fire marshal ruled them illegal, noting that they are not approved by the National Fire Protection Assn. and the National Bureau of Fire Underwriters.

Humble, which is trying the pumps in Houston, reports that it has not yet overcome this problem and is proceeding on an experimental basis.

What's New / IN MARKETING

How To Win Builders

Give a builder $100 and he'll install an oil burner in a new home, The Pacific Northwest Regional Advisory Committee has found.

"Response to our program indicates that builders prefer oil if the installation cost is competitive," Mose Vining, committee chairman, told PETROLEUM WEEK last week. The lower cost of gas equipment has long been a big stumbling block in oil heat's promotional efforts in the new home market PW—Jul.31'59,p74).

The Regional Advisory Committee, which operates as a sort of National Fueloil Council of the Northwest, claims that its $100,000 subsidy campaign will swing to oil heat 1,000 new homes that otherwise might have used gas or electricity.

The committe is composed of representatives of the five Oil Heat Institute chapters of Washington, Oregon, southern Idaho, northern Nevada, and the Inland Empire (Spokane), plus the major suppliers in the area.

•

Heating oil marketers will have a low-cost burner within a year or two, L. S. Marshman, manager of wholesale planning at Mobil Oil Co. told the Empire State Petroleum Assn. last week.

Marshman said the API research project (PW — Mar.13,'59,p87) has uncovered two or three new burner techniques that may give the oil industry a burner that can be priced at a level competitive with gas equipment.

•

API may drop its classification of crankcase oils.

Last week the Lubrication Committee of API accepted a recommendation that it consider the discontinuance of API's Engine Service Classification for Crankcase Oils. This recommendation, made by the service classification panel on engine severity, which met last week at Atlantic City, may be submitted to API's Marketing Division in November. If approved, it would discontinue a service that forms "a common technical language between the oil and automotive industries," according to the panel.

The action was prompted by Ford Motor Co.'s recommendation that motorists use multiviscosity oils, if certified by supplier to satisfy ASTM-G-IV Test Sequences.

•

The Research budget of the American Gas Assn. will be raised by $700,000 in 1960 to approximately $2.7-million, according to Fred W. Batten, chairman of AGA's general research planning committee.

Batten added that AGA is aiming at an expenditure of $6-million for research by 1965.

"Demonstrating how research is improving gas's competitive position, Batten cited the development of a miniature model gas furnace which generates its own electricity to power the air circulating fan—"a device that one day could divorce gas heating equipment from any reliance on electric power."

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DEPT/Personals

JOHN C. JOHNSTON moves up to manager of exploration for Pan American Petroleum Corp., at its general offices at Tulsa. He was most recently division exploration superintendent of Pan Am's Texas-Louisiana Gulf Coast division, in Houston. Before that, he was Rocky Mountain division exploration superintendent.

Dr. E. Soltes

J. C. Johnston

DR. ELTON SOLTES has been given over-all responsibility for the special projects and planning division of Delhi-Taylor Oil Corp., Dallas. He succeeds **J. W. Bartlett**, vice-president, who is retiring. Soltes has been manager of special projects in that division. **G. R. Gamble**, formerly supervisor of the treasurer's staff, has been transferred to the division as director of the new planning department. **B. J. Beard** has been promoted from gas engineer to director of the natural gas and pipeline department in the division. **Frank M. Coker** has been named engineering advisor to the division. Beard and Coker are also vice-presidents of Delhi Pipeline Corp.

TIDEWATER OIL CO. has announced the appointment of eight employees to new positions at its Avon (Calif.) refinery. **B. C. Shaul** is general superintendent and **C. L. Persyn** operating superintendent. **H. L. Benson** succeeds Shaul as superintendent of engineering, maintenance, and construction, and **S. A. Bordi** becomes superintendent of distillation, reforming, and treating, the post formerly held by Benson. **C. C. Carmine** has been appointed superintendent of shipping and utilities, while **P. B. Williamson** becomes superintendent of cracking, the position previously held by Persyn. **E. F. Courtney** assumes the newly created post of superintendent of petrochemicals, and **R. N. Johnson**, chief technologist, now becomes staff assistant to the division manufacturing manager.

CREIGHTON R. HODGES assumes new duties as assistant comptroller of Texas Eastern Transmission Corp., responsible for operations of the accounting sections of the company's gas division, Little Inch division, and oil division. **C. M. Kilgore**, formerly in charge of Texas Eastern's data processing department, moves up to manager of the newly-created general services division. Other appointments in a major alignment of the company's comptroller organization include **C. T. Moore**, accounting manager of the gas division; **W. D. Covington**, accounting manager for the Little Inch division; **P. M. Crandall**, accounting manager for the oil division; **D. D. Love**, supervisor of general accounting; **L. E. Nash**, supervisor of data processing; and **R. A. McKee**, supervisor of methods and systems.

OWEN LOREN GARRETSON has been appointed assistant to the president of National Propane Corp., primarily in charge of product supply, transportation, and storage. Since 1947, Garretson has been executive vice-president and director of Arrow Gas Co., a distributor of LPG in the Southwest acquired by National Propane Corp. in 1958. He is also director of the Liquefied Petroleum Gas Assn. and of the Agricultural Ammonia Institute.

HENRY MARCH has been elected a director of Producing Properties, Inc., Dallas. March, who is also a director of Champlin Oil & Refining Co., fills a vacancy created by the resignation of H. V. Sherrill of Shields & Co., New York.

LAUREL G. PARKINSON, general manager of marketing of Amoco Chemicals Co., has been elected a director. Parkinson joined the company early last year as general sales manager chemicals. He has been manager of the industrial chemicals department of Lever Brothers Co., New York, since 1954, and before that held positions in sales, manufacturing, research, and development at Atlas Powder Co.

ROBERT M. BRIDGES is the new manager of Sinclair Refining Co.'s Great Lakes division, with offices in Chicago. Bridges, formerly assistant division manager in Chicago, will be in charge of the company's marketing operations in Indiana, Michigan, and Ohio. He replaces **Harry H. Young**, vice-president, who has become general manager of the central division.

R. M. Bridges

R. A. Pratt

R. A. PRATT assumes new duties as administrative superintendent for Shell Oil Co.'s Norco (La.) refinery. Pratt was formerly manager of personnel and industrial relations of Shell Pipe Line Corp. He succeeds **V. G. Harrison**, who has been transferred to Shell's Wood River (Ill.) refinery. Pratt, with Shell since 1933, became manager of personnel and industrial relations for Shell Development Co. in 1954. He joined Shell Pipe Line in 1957.

ED ARNOLD becomes drilling engineer for Falcon Seaboard Drilling Co.'s Mid-Continent area, with offices in Tulsa. He was formerly an engineer for the company in Houston.

MAYO CURTIS has joined Tidewater Oil Co.'s production research group, at Houston. He was formerly a reservoir engineer for the company's western division. In his new position, Curtis will work on research problems concerning production of oil and gas reserves in Tidewater's expanding petroleum exploration and development program.

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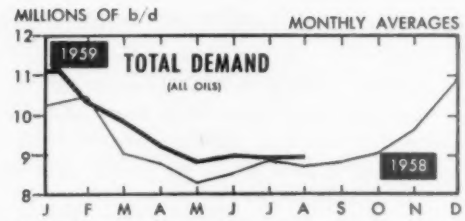
PETROLEUM WEEK'S

Fingertip Figures



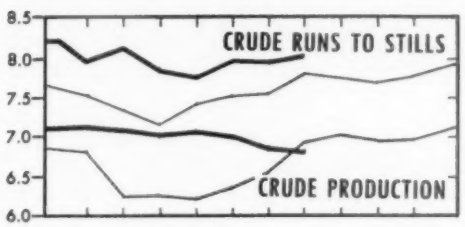
Figures for period ended September 18, except as noted

TOTAL DEMAND

Latest 4-week average	8.769
Year ago	8.598

GASOLINE DEMAND

Latest 4-week average	1.405
Year ago	1.400

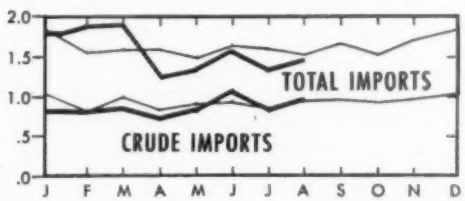


RUNS TO STILLS

Latest week	7.994
Previous week	8.181
Year ago	7.604

CRUDE PRODUCTION

Latest week	6.823
Previous week	6.813
Year ago	7.087

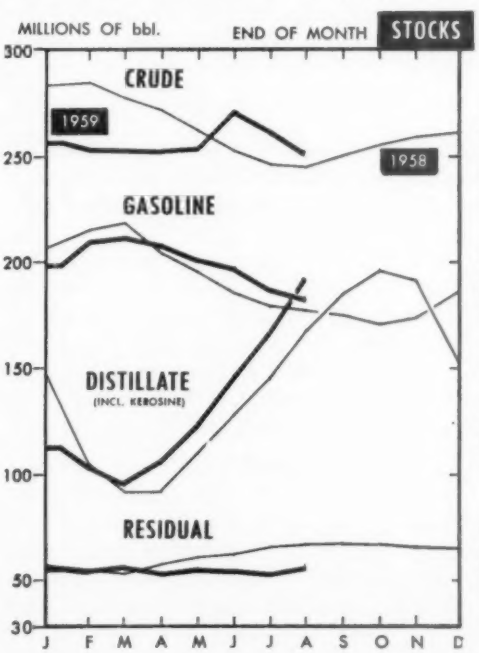


TOTAL IMPORTS

Latest week	1.392
Previous week	1.674
Year ago	1.460

CRUDE IMPORTS

Latest week	.919
Previous week	1.046
Year ago	.860



CRUDE STOCKS

Week-ended 9-12	249.2
Previous week	251.9
Year ago	240.7

GASOLINE

Latest week	180.8
Previous week	183.5
Year ago	173.2

DISTILLATES

Latest week	202.7
Previous week	201.4
Year ago	179.5

RESIDUAL

Latest week	58.2
Previous week	58.8
Year ago	68.9

Demand for residual fuel oil continues low, reflecting the effects of the 2½-month-old steel strike.

Residual demand should be picking up seasonally now, but the demand for the heavy fuel is showing only slight indications of recovering from the normally lower demand months of the summer.

Demand for residual from mid-August to mid-September averaged 1,288,000 b/d —or 100,000 b/d below demand in the 30 days prior to the steel strike, which started in mid-July.

If the steel strike does not end soon, the effects can be expected to fan out steadily into other industries.

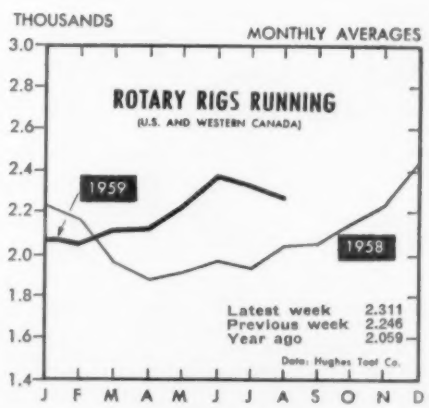
More plants are reducing manpower or shutting down entirely. If the strike continues beyond October, industrial activity is expected to turn down sharply.

Residual inventories have been rising since mid-August. In the past month they have jumped 3.3-million bbl.

And although residual stocks are still 9-million bbl. below last year, they have closed some of the gap that existed this summer. In mid-August, for example, stocks were as much as 12-million bbl. below last year's level.

Last year residual stocks hit their peak during the second week of October, reaching 69-million bbl. If the strike isn't settled soon, stocks this year may well top that figure.

Supplies of steel will be short even after the strike ends, meaning that residual stocks can be expected to continue their upward climb for a while even after a settlement.



The Market Trend

A Little Weather, a Little Action

There's nothing like a few cool September nights up north to stimulate a little action at the Gulf. Distillate prices moved up a confident 0.375¢ last week when nightly temperatures fell below 40 degrees and the burners clicked on.

The advances, made in two bumps, erased a bitterly-complained-about price of 7.75¢ for No. 2 fuel that had held for a little more than a month. Refiners were snappish about it because it was the lowest price for heating oil since June 28, 1954, when they paid $2.82 for 36-36.9 gravity Ellenburger crude. This crude sells for $3 now.

This doesn't mean that refiners are all one jolly group over the current low quotation at the Gulf. They're not. But you will see a few cargoes in the spot market. And buyers will hesitate and check, guess and test whether this is the time to pick up a loose tanker lot.

To buy or not to buy? It turns on the question of whether the money should be in the bank or in the tank. And the guessing—or outguessing—goes on. Some refiners are holding their distillates for higher prices. And buyers are asking how "2-oil" can be a bargain at 8.125¢ when nobody bought at 7.75¢.

Perhaps a lot depends on where you stand when you look at government import controls. Buyers are discounting their effect on light oil prices. With the Caribbean locked out the way it is, refiners say time and statistics are on their side.

Caribbean Shows Its Independence:

Caribbean distillate prices rose with the Gulf Coast last week, or so it looked for a few hours. After the Gulf market had moved up 0.25¢ a gallon across the board, Jersey Standard affiliates in the Caribbean announced they were advancing their distillates 0.375¢.

The low Gulf Coast postings met this, however, and still another 0.125¢ was tacked on to kerosine. The price differential on kerosine at the Gulf is now 0.5¢ over No. 2 fuel.

Argentina To Export Gasoline:

Snug tankage and a desire not to cut crude runs has put Argentina's oil monopoly, Yacimientos Petroliferos Fiscales, in the export gasoline business. The government has given YPF permission to market gasoline outside the country "at the best possible price."

Mexican Barter—Cotton for Oil:

Mexico's government oil monopoly, Petroleos Mexicanos, is said to be working to make it mandatory for importers who bring gasoline and lubricating oils over the border of Lower California to swap or sell cotton before any deals can be closed. When a given amount of Mexican cotton is disposed of, the petroleum importer can get clearance for his goods.

Pushing cotton to clear the way for imports is not new in Mexico. Pemex itself has imported products over the Tijuana-Mexicali border, the so-called import side of Mexico, through cotton swaps. Now it asks that the large independent dealers in Lower California do the same in order to establish a better trade balance. About $700,000 worth a month of gasoline and lube oils comes into Mexico along this narrow border from California suppliers.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of September 21

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12.25-13
- Gasoline, 92 oct reg....11-11.5
- **Kerosine....8.625↑-10.375**
- **Heating oil, No. 2....8.125↑-9.875**
- **Gas oil, 48-52 d.i....8.375↑-10.125**
- Fuel oil, bunker "C"....$2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130....15.25
- Gasoline, 93 oct research prem....11.25
- Gasoline, 87 oct research reg....10.375
- Gasoline, 79 oct research....9.625
- Gasoline, 70-72 oct motor method....9.5
- **Kerosine....8.625↑-8.75↑**
- **Heating oil, No. 2....8↑-8.125**
- **Gas oil, 48-52, d.i....8.25↑-8.375↑**
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- Kerosine....9.35-9.6
- Heating oil, No. 2....8.85-9.1
- Fuel oil, No. 6....$2.37-2.47

Okla-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg....11.5↓-12.25**
- Kerosine....9.5-9.75
- Heating oil, No. 2....8-8.5
- Fuel oil, No. 6....$1.40-1.80

Chicago, bulk
- **Gasoline, 91 oct reg....11.75↓-12**
- Heating oil, No. 2....9.125-10.85
- Fuel oil, No. 6 high sulfur....7.4-7.5

Los Angeles, rack
- Gasoline, 88 oct reg....11.65-12.65
- Diesel fuel, PS 200....8.5-11.25
- Light fuel, PS 300....$2.80
- Heavy fuel, PS 400....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....5
- Propane, Baton Rouge....5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....22-23
- 200 vis. neutral 25 p.t....25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....24-25
- Neutral, solvent 200-210 vis....20.5-21.5

Gulf Coast Lubes
- Bright stock, solvent 95 v.i....24
- Neutral, solvent, 200 vis....20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130....16.5
- Gasoline, 79 oct research....10
- Kerosine....10.125
- Gas oil, 48 d.i. minimum....9.625

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- **Mid-Continent, 36.0-36.9....$2.62↓-2.97**
- North Dakota, 36.0-36.9....2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N. M., inter., 36.0-36.9....2.93
  - West Texas, N. M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....3.51
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.40
- California, Signal Hill, 21.0-21.9....2.22-2.32†
- North Louisiana-Arkansas, 36.0-36.9....2.77-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.435
- Virden (Man.)....2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido....$3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, Las Piedras....1.73-1.88
- Tarra, 38.0-38.9, San Lorenzo....2.83
- Lagunillas Heavy, flat, Cardon....2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.89-1.90
- Safaniya, 27.0-27.9, Ras Tanura....1.50
- Iran, 34.0-34.9, Bandar Mashur....1.86
- Iran, 34.0-34.9, Abadan....1.81
- Iraq, 35.0-35.9, Fao....1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.67
- Qatar, 41.0-41.9, Umm Said....2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud....1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud....1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon....$2.27
- Iraqi, 36.0-36.9, Tripoli, Banias....2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat....$2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean	(USMC—35%)	$1.85
U.S. Gulf-New York, dirty	(USMC—32½%)	$1.92
NWI-USNH, dirty	(USMC—50%)	$1.38
NWI-UK/Cont., dirty	(Scale—30%)	22/9*
Persian Gulf-UK/Cont., dirty	(Scale—65%)	23/3*
Persian Gulf-USNH, dirty	(USMC—75%)	$3.18

**Sterling.*

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(Classified Advertising)

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EQUIPMENT & BUSINESS OPPORTUNITY advertising $16.75 per inch.
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MARTIN 404 FOR EXECUTIVE CONVERSION

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Toolpusher with wife and two children seeks position in South America—preferably Venezuela or Argentina. Seven years with present company. Experience on National and Emsco rigs. Write PW-2656, Petroleum Week.

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Two responsible men each 15 years experience now holding management positions major company interested buying jobber operation preferably South East. Thoroughly familiar all phases marketing including international sales. Would be particularly interested buying 50% 1959/60 remainder 1961/62. Welcome thorough investigation. BO-2528, Petroleum Week.

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DEPT/Service & Equipment Companies

ROBERT L. ALLEN has been named president of the Solar Chicago Division of U. S. Industries, Inc., Chicago. The division manufactures tanks and pressure vessels for the oil, gas, chemical, and brewing industries. Allen has been general sales manager of the division for the past two years. Before that he held a similar position with Fritz W. Glitsch & Sons, Inc., Dallas manufacturer of pressure vessels. In his new position, Allen succeeds **Arthur Sternberg**, who continues as president of USI's Solar Permanent Division.

W. C. Gray

R. L. Allen

W. C. (Dub) GRAY has been appointed Gulf Coast division manager for the Security Engineering Division, one of the Dresser Industries, with offices in Houston. Gray was most recently Security's distributor sales coordinator, and before that was Oklahoma division manager. Prior to joining Security in 1945, Gray was associated with Halliburton Oil Well Cementing Co.

GRAVER TANK & MFG. CO., East Chicago, Ind., division of Union Tank Car Co., has won the highest honors of the 1959 Putman Awards for industrial advertising. The award went to Graver for its "outstanding advertising of its elevated water storage tanks." Plaques and prizes of $1,000 each were awarded to **H. J. D'Aragon**, Graver general sales manager, and **Robert F. Millett**, Graver advertising manager. The awards are sponsored by the Poor Richard Club of Philadelphia, with Putman Publishing Co., of Chicago, as the donor.

J. D. CUNNINGHAM is the new location manager at Donaldsonville, La., for Schlumberger Well Surveying Corp. He was formerly a sales engineer for the company at Venice, La. Four Schlumberger engineers recently reassigned are: **L. S. Kersey**, formerly field engineer at Lake Charles, La., now sales engineer at Lafayette, La.; **J. E. Davis**, now sales engineer at Venice, La.; **O. T. Maxwell**, now sales engineer at Kermit, Tex.; and **R. H. Neustaedter**, now sales engineer at Tyler, Tex.

JACK KOHL has been appointed manager of the Western Sales region for Black, Sivalls & Bryson, Inc., with offices in Los Angeles. Kohl moves to Los Angeles from Philadelphia, where he has served as district sales manager since 1957. He started with BS&B in 1953 as district sales engineer in the Chicago office.

B. Aulick

T. Phillips

TRAVIS PHILLIPS becomes division manager at Shreveport for Halliburton Oil Well Cementing Co., and **BURTON AULICK** succeeds him as division manager at New Orleans. Aulick has been assistant division manager at New Orleans since 1954. Phillips succeeds **J. L. McBride**, who is retiring after 38 years with the company. Phillips has been division manager at Shreveport since 1956.

JOHN C. WEAVER, division credit manager of National Supply Co.'s Northwest division, in Denver, has won the American Petroleum Credit Award for 1959. The award was presented to Weaver for his study of Practical Application of Oil & Gas Liens. The study was submitted in a competition in connection with the Graduate School of Credit & Financial Management, conducted at Dartmouth College by the Credit Research Foundation of the National Assn. of Credit Management.

LEE DAWSON, JR., has been named manager of the Tulsa office of F. H. Maloney Co., Houston. Dawson has been transferred from the company's home office, where he was production expediter. Dawson will direct Maloney engineering sales and service in Oklahoma, Kansas, Arkansas, Missouri, Colorado, Montana, Wyoming, and Nebraska. Maloney is a manufacturer and fabricator of metal, plastic, and rubber products for the oil and gas industry.

BOBBY G. STOOPS, assistant chief engineer at Rockwell Mfg. Co.'s instrument division in Tulsa, has been promoted to chief products engineer there. Stoops joined the company in 1955 as a design and development engineer, and was promoted to his most recent position in 1957.

LEROY SNELL assumes the position of sales representative for Walworth Co.'s Gulf division, with offices in Houma, La. Snell will be responsible for the southern Louisiana area. Before joining Walworth, Snell was manager of a supply company in Louisiana.

JONES & LAUGHLIN SUPPLY DIVISION has reassigned three salesmen, and appointed a new salesman who has recently completed J&L's training program. The salesmen and their new assignments are: **B. G. O'Brien**, formerly located at Salem, Ill., now at Greensburg, Ky.; **J. H. Rankin**, formerly at Kermit, Tex., now at Hobbs, N. M.; and

H. E. Reeves, formerly at Natchez, Miss., now at Laurel, Miss. **C. K. Ridgeway,** the new salesman, will be located at Mexia, Tex.

DONALD B. WINFREY returns to Petty Geophysical Engineering Co. as assistant to **Fred Lindall,** president of the company. During his eight-year absence from Petty, Winfrey was head of his own company, and exploration manager in Venezuela and chief geophysicist in the foreign department for Cities Service Petroleum, Inc.

D. B. Winfrey T. E. Casselman, Jr.

THEODORE E. CASSELMAN, JR., has been named manager of Stone & Webster Engineering Corp.'s New York office. Casselman, with Stone & Webster since 1940, was most recently assistant engineering manager in the Boston office.

ED C. KOPP is vice-president in Maloney-Crawford Tank & Mfg. Co.'s newly expanded sales division, with offices in Ft. Worth. He was formerly a division manager for the company. **George W. Smith** has been named division sales manager, with offices in Houston. He was formerly regional manager, in Dallas, for Union Tank Co., which was recently acquired by Maloney-Crawford. He succeeds **Clint B. Warren,** who is now division sales engineer in Houston. **Thomas Q. Mayes,** formerly Maloney-Crawford assistant manager in Houston, has been promoted to branch manager there. **Mac W. Miller,** who was area sales engineer for Union, has been promoted to sales engineer in Dallas. **Charles K. Gravis,** engineer for Union at New Orleans, has been promoted to sales engineer at Harvey, La.

DONALD H. KEITH has joined Rig Time, Inc., Shreveport well logging and core analysis company, as a technical representative and engineer. He was formerly a consulting geologist in the Ark-La-Tex area. Rig Time has operations in the Ark-La-Tex area and in Mississippi.

R. J. RICE heads McCullough Tool Co.'s new Mountain division sales office in Billings, Mont. He was formerly assistant division manager, logging and sales promotion, at Casper, Wyo.

CUMMINS SALES & SERVICE, INC., Ft. Worth, has named four new vice-presidents to take charge of the company's sales operations. The four are: **H. B. Burr, Jr.,** formerly a sales engineer at Ft. Worth, vice-president, oil field sales; **J. B. Siegrist,** formerly sales representative for original equipment manufacturer contracts in Ft. Worth, vice-president, automotive sales; **R. J. Arroyo,** formerly division manager at New Orleans, vice-president, marine sales; and **H. H. Hope,** formerly division manager at Oklahoma City, vice-president, construction and special sales. At the same time, **W. R. Bowman** was named division manager of diesel sales and service at Oklahoma City. He was most recently general manager of Cummins Sales & Service de Venezuela C. A., at Caracas.

W. Lutke J. S. Taylor

WAYNE LUTKE and **JAMES S. TAYLOR** have been named to newly created positions in the oil and gas equipment sales operation of Graver Tank & Mfg. Co., East Chicago, Ind., a division of Union Tank Car Co. Lutke is the new district manager of sales in Midland, Tex., and Taylor the new sales engineer in Tulsa. Both men have had several years' experience in the sales and service of oil and gas equipment. Their appointments are a result of the integration of oil and gas equipment sales into the overall Graver sales and manufacturing operation. Formerly, oil and gas equipment sales were handled through a separate division.

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95 Farrington St.

Put The Blame Where It Belongs

THE FEDERAL TAX ON GASOLINE will go up 1¢ per gal. Thursday. Consumer prices will reflect this increase immediately and, no doubt, many disgruntled motorists will let loose on "those blinkety-blank oil companies" for squeezing them for another penny at a time when the market is obviously overloaded with motor fuel.

Public memories are short. So it will be the dealers and distributors who'll have to take the lumps. Not the federal government, which boosted the ante two weeks ago to refill the till for the interstate highway program.

Few people really realize that the retail price of gasoline is and has been amazingly low; that federal, state, and local taxes currently account for 41% of the price they pay for the fuel itself every time they get their tanks filled. In other words, that combined taxes now average 9¢ a gal. nationally, and soon will average 10¢. That will raise the national average to 47%, and in at least 20 states taxes will represent more than 50% of the cost of the gasoline.

Many gimmicks have been developed, and much effort has been expended by oil companies and trade associations, to impress the public with these facts. But a new approach is needed to hammer this message home. Something to replace the tired cliches of "taxoline," and "only the taxes are higher."

WHAT THE INDUSTRY SHOULD DO is sell gasoline at the pump at its true retail price. It should make the taxes a separate item, in much the same way that department stores and other merchandisers vend their wares. This would necessitate changes in the price windows on gasoline pumps, in the computer mechanisms, in sales slips, and even in dealer bookkeeping techniques. (It might also require enabling legislation in some states.)

All this would cost money and concerted effort. But the psychological effect and the billions in taxes involved would be worth it. Nothing would make motorists more tax-conscious than to be given a sales slip for a moderate sum, and a supplemental chit showing close to 50% more in taxes. Could be that it would irritate them. And if enough people get irritated something is bound to happen.

OIL MEN HAVE TALKED ABOUT THIS BEFORE. Most agree that it's a pretty good idea. But inertia, the resistance of pump manufacturers, the need for united action, and other factors have always kept it from distilling.

Local, state, and federal governments have found the motor fuel tax route a relatively soft touch for emergency funds. That concept must be altered drastically, or some of these days the oil industry is going to find itself in bed with several other industries where taxes exceed the retail price of the product itself.

Is there a better way to sell gasoline than on a "plus taxes" basis?

DIRECTIONAL DRILLING • FISHING & CUTTING • ELECTRICAL WELL SERVICES • OILFIELD SUPPLIES • EXPORT TOOLS & SERVICE

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Directional Drilling

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If you pick the right man for the job and give him the proper tools you know that the job will be done right. Homco does just that. Every Directional Drilling job that Homco is called on to do receives the attention of a group of experienced men who know their jobs. They choose the man and the tools and keep in constant touch with him until the job is completed.

The tools you see here are representative of the complete line available at Homco — the most complete line of Directional Drilling tools in the industry.

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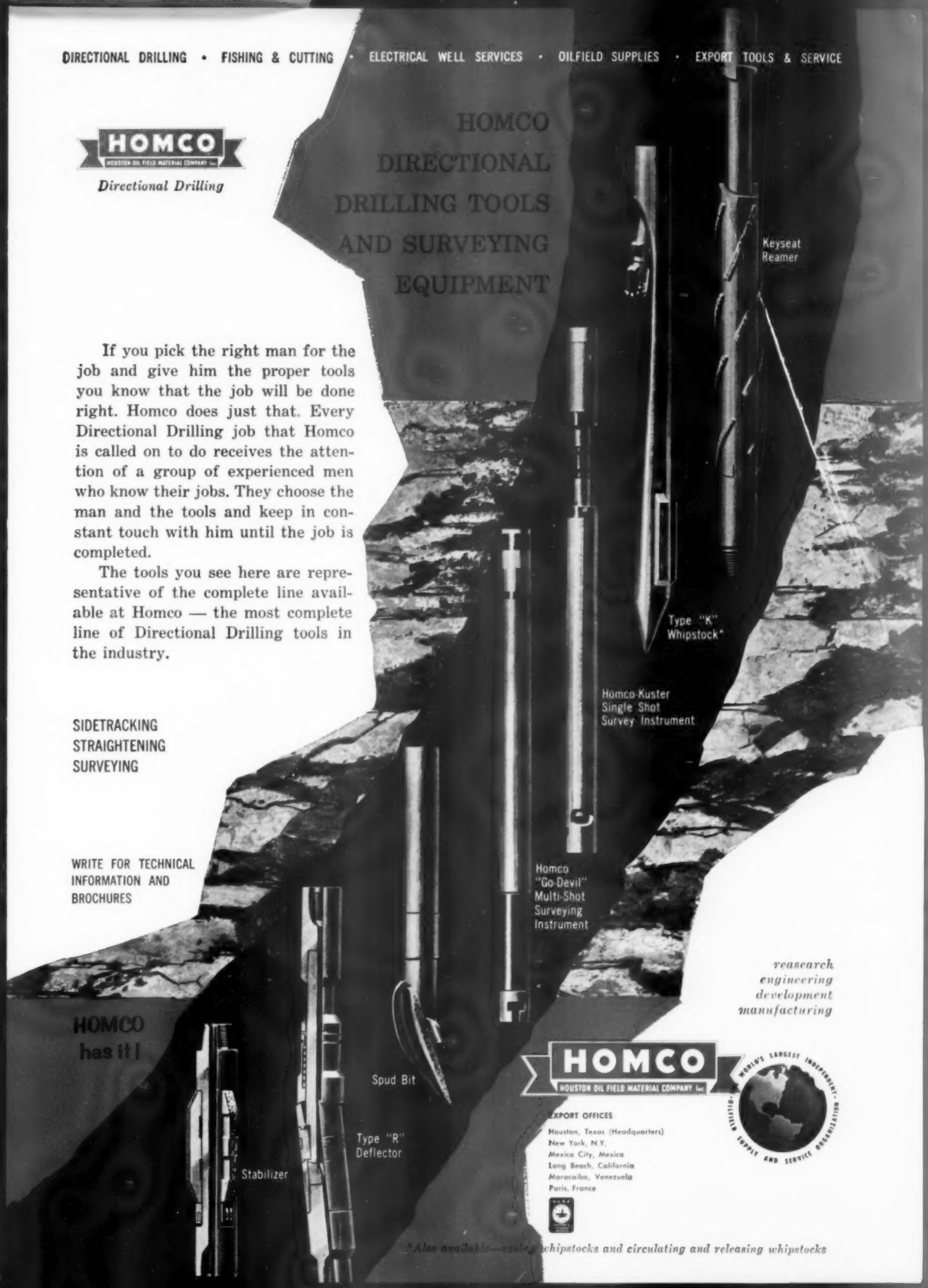

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